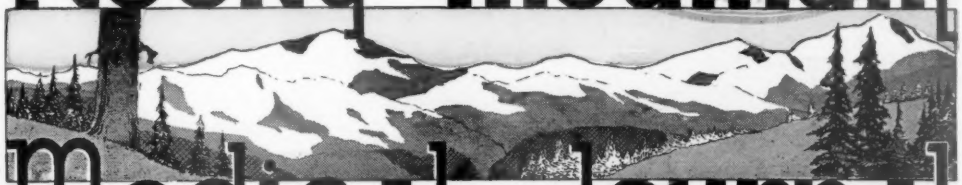
Rocky Mountain Medical Journal



Happy New Year

Vol. 48—No. 1
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HYPERSENSITIVITY TO COMMON DRUGS — HEMORRHAGE AND SHOCK IN OBSTETRICS

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JANUARY, 1951

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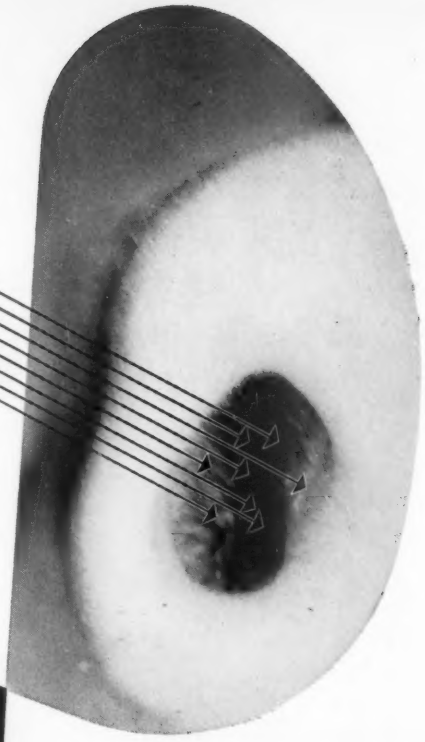
the nasal passages



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THE COLORADO STATE MEDICAL SOCIETY

NEXT ANNUAL SESSION: SHIRLEY-SAVOY HOTEL, DENVER, SEPTEMBER 18, 19, 20, 21, 1951.

OFFICERS

Terms on Officers and Committees expire at the Annual Session in the year indicated. Where no year is indicated, the term is for one year only and expires at the 1951 Annual Session.

President: Ervin A. Hinds, Denver.
President-Elect: Harry C. Bryan, Colorado Springs.
Vice President: Samuel P. Newman, Denver.
Constitutional Secretary (three years): George R. Buck, Denver, 1951.
Treasurer (three years): George C. Shivers, Colorado Springs, 1953.

Additional Trustees (three years): Claude D. Bonham, Boulder, 1951; Cyrus W. Anderson, Denver, 1952; E. H. Munro, Grand Junction, 1952; M. L. Phelps, Denver, 1953.

(The above nine officers compose the Board of Trustees of which Dr. Samuel P. Newman is the 1950-1951 Chairman.)

Board of Councilors (three years): District No. 1: Clemens F. Eakins, Brush, 1951; No. 2: Ella A. Mead, Greeley, 1951; No. 3: Leonard G. Crosby, Denver, 1951 (Vice Chairman 1950-1951) No. 4. Ward C. Fenton, Rocky Ford, 1953; No. 5: Jesse W. White, Pueblo, 1953; No. 6: Herman W. Roth, Monte Vista, 1953; No. 7: Leo W. Lloyd, Durango, 1952 (Chairman 1950-1951); No. 8: Arch H. Gould, Grand Junction, 1952; No. 9: Marvel L. Crawford, Steamboat Springs, 1952.

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Delegates to American Medical Association (two years): William H. Halley, Denver, 1952; (Alternate: Kenneth C. Sawyer, Denver, 1952); George A. Unfug, Pueblo, 1951; (Alternate: Herman C. Graves, Grand Junction, 1951).

Foundation Advocate: Walter W. King, Denver.

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Executive Office Staff. Mr. Harvey T. Sethman, Executive Secretary; Miss Helen Kearney, Assistant Executive Secretary; Mr. Evan A. Edwards, Public Relations Director and Field Secretary, 835 Republic Building, Denver 2, Colorado. Telephone AComa 0547.

General Counsel: Mr. J. Peter Nordlund, Attorney-at-Law. Denver.

STANDING COMMITTEES

Arrangements: Wm. M. Covode, Denver, Chairman; others to be appointed.

Credentials: George R. Buck, Denver, Chairman; James M. Lamme, Sr., Walsenburg; C. H. Graf, Boulder; C. G. Freed, Denver; F. J. McDonald, Leadville.

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Sub-Committee on Monthly Health Article: R. C. Scannell, Denver, Chairman; F. A. Humphrey, Fort Collins; H. J. Dodge, Denver; C. F. Kemper, Denver; Edgar Durbin, Denver; Mariana Gardner, Denver.

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THE COLORADO STATE MEDICAL SOCIETY

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Advisory to U.M.W. Welfare Fund: Fredrick H. Good, Denver, Chairman, 1951; W. W. Haggart, Denver, 1951; J. S. Bouslog, Denver, 1951; Ligon Price, Hayden, 1952; J. M. Lamme, Sr., Walsenburg, 1952; Robert Bell, Denver, 1953; F. H. Hartshorn, Denver, 1953; D. W. McCarty, Longmont; M. F. Smith, Trinidad, 1951; E. B. Ley, Pueblo.

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Representatives to Adult Education Council: Cyrus W. Anderson and William E. Hay, both of Denver.

Rocky Mountain Medical Conference: G. P. Lingenfelter, Denver, Chairman, 1952; D. W. Macomber, Denver, 1954; L. Clark Hepp, Denver, 1953; Ward Darley, Denver, 1951; Terry J. Gromer, Denver, 1955.

MONTANA STATE MEDICAL ASSOCIATION

NEXT ANNUAL SESSION: GREAT FALLS, SEPTEMBER 13, 14, 15, 16, 1951.

OFFICERS, 1950-1951

Terms of Officers and Committees expire at the Annual Session in the year indicated. Where no year is indicated, the term is for one year only and expires at 1951 Annual Session.

President: Clyde H. Frederickson, Missoula.
President Elect: Frank L. McPhail, Great Falls.
Vice President: James M. Flinn, Helena.
Secretary-Treasurer: Herbert T. Caraway, Billings.
Executive Secretary: Mr. L. R. Hegland, 240 Stapleton Building, Billings, Montana.
Delegate to American Medical Association: Raymond F. Peterson, Butte; Alternate, Thomas L. Hawkins, Helena.

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Subcommittee on Pediatrics: Orville M. Moore, Chairman, Helena; George H. Barmeyer, Missoula; Roger W. Clapp, Butte; Frank J. Friden, Great Falls; Donald L. Gillespie, Butte.

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Mental Hygiene Committee: Winfield S. Wilder, Chairman, Great Falls; James J. Bulger, Great Falls; Roger W. Clapp, Butte; J. E. Krem, Missoula; Martin A. Ruona, Billings; Maurice A. Shillington, Glendive.

NEW MEXICO MEDICAL SOCIETY

NEXT ANNUAL SESSION: LA FONDA HOTEL, SANTA FE, MAY 3, 4, 5, 1951

OFFICERS—1950-51

President: I. J. Marshall, Roswell.
President-Elect: Leland S. Evans, Las Cruces.
Vice President: Coy S. Stone, Hobbs.
Secretary-Treasurer: Lucien G. Rice, Jr., Albuquerque.
Executive Secretary: Mr. Ralph R. Marshall, Albuquerque.

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Delegate to A.M.A.: John F. Conway, Clovis, 1951.
Alternate Delegate to A.M.A.: C. H. Gellenthien, Valmora, 1951.

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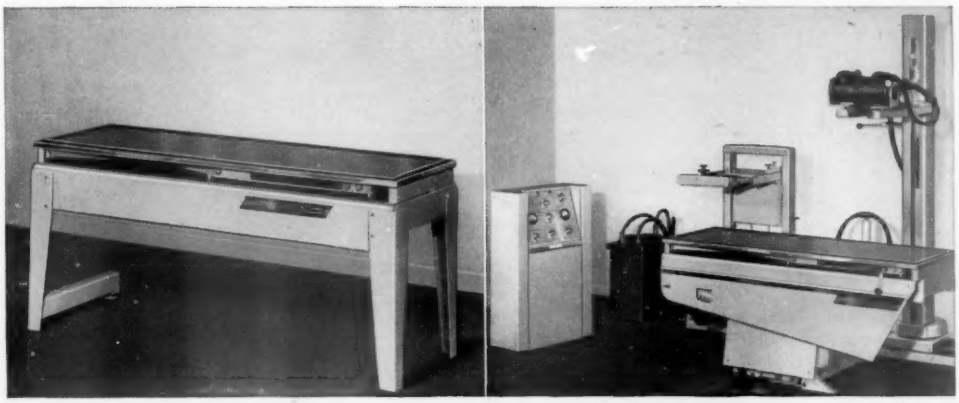

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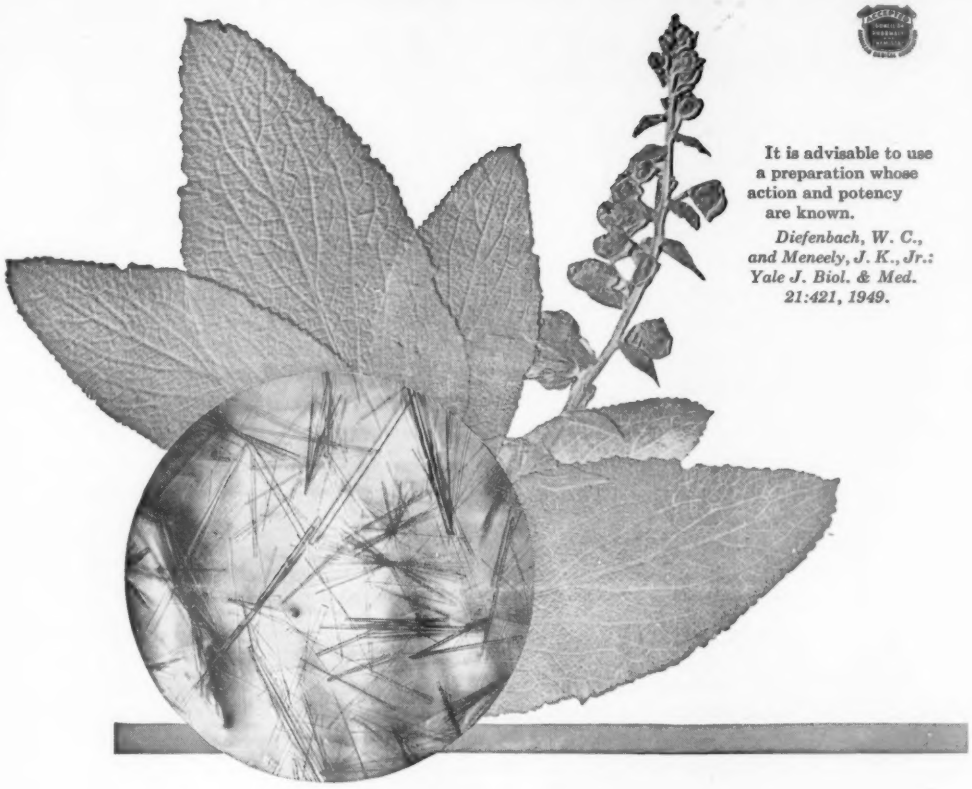

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Muscle meat is a good source of the newly isolated vitamin B_{12}; liver and kidney are especially high in their vitamin B_{12} content, while plant foods are negligible sources of this nutrient.[1] By rat assay, the minimum amounts of vitamin B_{12} in muscle meat range from 0.5 to 3 mcg. per 100 Gm.; minimum values for beef liver and kidney are 15 and 20 mcg., respectively.[2]

B_{12} is among the most potent of known microbiologically active substances.[3] Animal studies indicate that it increases the ability of the normal mammal to utilize protein.[4] With a high protein diet, 0.01 mcg. of vitamin B_{12} per day was found to increase significantly the growth rate of B_{12} deficient rats. In another study, growth response of B_{12} depleted rats was proportional to the B_{12} in the ration within the critical range of 0.025 to 0.1 mcg. per rat day.[5]

About 1 mcg. of vitamin B_{12} daily, administered intramuscularly, constitutes an effective dose in pernicious anemia. In a recent clinical study of young children manifesting vitamin B_{12} deficiency as evidenced by malnutrition and growth failure, oral administration of 10 mcg. of vitamin B_{12} daily for eight weeks induced marked responses in growth; notable increases in vigor, alertness and better general behavior; and improved appetite.[6]

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(1) Schweigert B. S.: Significance of Vitamin B_{12} and Related Factors, J. Am. Dietetic Assoc. *26*:782 (Oct.) 1950.

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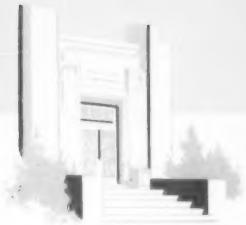

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Rocky Mountain Medical Journal
Colorado
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JANUARY
1951

Editorial

Malpractice Insurance

THE Medicolegal Committee of the Colorado State Society has had opportunities to observe, on occasion, how inadequate was the amount of physicians' liability insurance carried by a doctor involved in a threatened suit, or actual suit, for malpractice.

Suits against doctors for alleged malpractice seem to be increasing, nationally, though not to the same extent in this region as in certain other parts of the country. There is probably no comparable increase in the bases for these suits. Rather, the trend is in line with the growing "gimme" philosophy of the times. It appears that here, in malpractice suits, is a "gimme field" which has not previously been developed to the limits of its potentialities!

No doctor is immune to a suit, or threat of suit, no matter how skillful he is, of what good repute, or how conscientious. Results are not always what were hoped. Complications do occur. Patients become dissatisfied or disgruntled. Things are said to a patient which lead him to believe he has grounds for action against a doctor. Some of these things may be said inadvertently or may be misinterpreted. Others may be deliberate. Unfortunately, they frequently begin with some other doctor's remarks, or those of a nurse.

Once a suit is actually filed, or even only formally threatened, only time can determine or the gods may know where and what the end will be. This is true in cases of actual suit regardless of whether the insurance carrier settles the case out of court or whether it comes to trial before a jury. When a malpractice suit is brought against a doctor, it is not for "hay."

Setting aside other kinds of injury to the doctor involved, the one we have under consideration here is monetary. Many doctors took out the minimum policies of malpractice insurance when they first started practice (the usual $5,000 for any one claim or $15,000 for any one year) because that was all they could afford at the time—and they have never increased the amount. Nowadays, to carry such a small malpractice policy is false economy and could prove disastrous.

Inadequate insurance can be more damaging to the younger doctor whose worldly goods are limited than to the established man, who has more. Also in cases where an inadequate amount of insurance is carried, so that a satisfactory settlement out of court cannot be made, damage to the young doctor's reputation can be greater than to one who is well established. A judgment once entered in court has no statute of limitations, and judgment for considerably more than the doctor's insurance covers can take most everything he owns, with the unpaid balance in lien against future earnings or possessions until paid. The alternative is voluntary bankruptcy.

It is surprising how little more in premiums a great deal more protection costs. For example, in one company, a premium of $20 a year gives $5,000-$15,000 protection, while a premium of only $36.50 buys a $50,000-$150,000 policy—ten times the protection for less than twice the premium.

He would seem, therefore, very foolish, who does not carry sufficient liability insurance to do him some real good if, as, and when he ever needs it. As with all insurance, when it will be needed, nobody knows.

L. W. M.

Homotransplantation of Human Tissue

GLAMORIZED medical and surgical so-called "miracles" in lay publications often engender unreasonable hopes and demands among patients and their relatives. The most recent "miracle" which has come to our attention is transplantation of a human kidney. Readers of the report have been led to believe that a sufferer of an irreversible and fatal kidney disorder has been restored to health and will live happily ever after. Doctors familiar with homotransplantation of human tissue know that permanent success is rare even under the most favorable circumstances. For example, homotransplantation of skin is only temporarily successful except when the donor is an identical twin; corneal transplants have become opaque in many instances; preserved cartilage is often tolerated in the recipient individual as a benign foreign body, but not as living tissue; homogenous bone is replaced by living bone of the host. Ample clinical and experimental evidence attests these facts.

Thus lasting survival of a parenchymatous organ after transplantation into another human being appears to be unthinkable in the present stage of our knowledge, blood relationship and blood grouping notwithstanding. Foreign body reaction, abscess formation, sepsis, cloudy swelling, fibrosis, atrophy, and gradual absorption are possible complications to name a few.

A recent issue of J.A.M.A. presents an authentic account of the case in question written by five of our colleagues in Chicago. The authors review the question of autogenous grafts of various tissues. They discuss the fate of kidney homotransplantations in dogs. Cases have shown varied reactions from immediate death of the graft and/or host to physiologic function for several days. Usually within a week, foreign body reaction occurred and kidney function ceased.

The human case given national publicity was that of a white woman, aged 44, who had a complex family history of polycystic kidneys in near relatives. The patient had had abdominal pains and some dysuria for nine years. A year ago, polycystic kidney disease had been revealed by intravenous pyelograms. Both kidneys were involved. Last June the left one was removed. A kidney from a woman 49 years of age who had died from esophageal varices and cirrhosis of the liver was transplanted into the host. One of her kidneys was bathed in saline solution, heparin in saline solution injected into the artery and vein, and its ureter anastomosed end to end around a small catheter to the ureteral stump of the host. End to end anastomosis of the renal artery and vein was performed. The "new" kidney was placed in the perirenal tissues, but no nephropexy performed. Postoperative days were uneventful, urinary output normal. She left the hospital on the twenty-ninth postoperative day. During this period, national publicity occurred.

However, as in so many dramatic cases, the later picture has not been described and the story's end may be far away.

On the sixty-third postoperative day, a retrograde pyelogram demonstrated an incomplete stricture at the point of anastomosis in the ureter. The stricture was progressive and nephrotomy to prevent possible hydronephrosis was performed. Twenty c.c. of pus had accumulated in the perirenal space. The surgeons saw and examined the grafted kidney. There was no gross evidence of deterioration. The patient is again active and apparently carrying on a normal life. The authors have, of course, withheld their conclusions and further work upon the case is in progress.

We shall be interested in the fate of this case, but pessimistically predict its failure. According to all previous experience with grafting of homogenous human tissue, despite similarity of donor and recipient, indications are that one or more of the above complications will afflict this case. We agree that sensible and safe experimentation of this type contributes to surgical progress. It should, nevertheless, be our duty as physicians to withhold the data from the public until the final outcome of cases in question shall have been determined. And may we renew our plea that the term "miracle" be forever deleted from reports upon the accomplishments of surgery!

Original Articles

HYPERSENSITIVE REACTIONS TO COMMONLY USED DRUGS*

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It is common experience for physicians to see patients who develop skin eruptions following use of drugs. Hypersensitivity to drugs is important and we need more information about it if we are to prevent and treat the disorder intelligently. While skin rashes are the commonest manifestations of drug allergies, reactions in other tissues are common. Thus one encounters rhinitis, asthma, fever, arthritis, hepatitis, panarteritis and blood dyscrasia, and rarely changes in the central nervous system. There are reasons for believing that the clinical picture is mainly the result of an immunological reaction of sensitized tissue to chemical agents or to some part of the chemical agents employed. It is frequently impossible, however, to demonstrate an antigen antibody reaction in patients with drug allergy regardless of the method employed.

Before discussing drug allergy in particular, I want to say something about hypersensitiveness in general. It was forty-four years ago that von Pirquet and Schick published their classical monograph on serum sickness. Since that time this problem has received constant attention because of its frequency and importance. The immunologic mechanisms of serum sickness have been studied in this country especially by Longcope and his associates. Briefly it has been shown that following injection of horse serum into man, the antigen can be detected in the circulating blood for a variable period. Beginning about the fifth to the fourteenth day after injection of the complex protein, antibodies begin to appear in the circulating blood. At this time, classical clinical features of serum sickness appear. They are a gradual increase in body weight with retention of sodium chloride and water, edema, enlargement of the lymph nodes and spleen, skin eruptions, fever, leucocytosis, and arthralgias. As the antibody titer of the blood increases, antigen titer decreases and symptoms subside. With disappearance of antigen from the blood, clinical symptoms disappear and the patient recovers. However, antibodies continue to remain in the blood and tissues for long periods of time. In some patients, the foreign protein may remain in the circulating blood for weeks and antibodies fail to appear. In these patients serum sickness fails to develop.

The antibody in patients with serum sickness is heat stabile and when present in the blood is demonstrable in vitro by the usual immunologic technic, and in vivo by anaphylaxis, the Arthus reaction, the immediate type of cutaneous reaction with wheal and flare, and the capacity to sensitize passively. Sensitivity can be detected in such a patient by passive transfer and positive reactions to scratch or intracutaneous tests.

There is a second form of allergy or hypersensitiveness in which the antibody is heat labile. It never reacts in vitro, but it is capable of producing prolonged passive sensitization of tissues especially skin into which it is injected. This antibody may develop in anyone under suitable circumstances, as in trichinosis. It is most often demonstrated in so-called "atopic" persons.

There is a third form of hypersensitive patient in whom no demonstrable antibody is found in the circulating blood. This is the commonest form of allery to drugs and infections. There may be a tuberculin type of reaction in the skin following the in-

*Presented before the Utah State Medical Association, September 1-3, 1949. The author is Wade Professor of Medicine, Boston University School of Medicine; Director, Evans Memorial, and Physician-in-Chief, Massachusetts Memorial Hospitals. Lack of space precludes publication of an extensive list of references.

jection of the allergen, or a local superficial reaction may often follow a patch test, or a general reaction when the antigen is absorbed into the circulation.

Finally it is important to recall that it is the cells of the body that become hyperreactive so that we need more studies on reaction of the sensitized cell to allergens.

If we are to reduce the incidence of hypersensitivity we must be familiar with conditions under which exposure to a drug may be of greatest importance in producing the state. We know that application of potentially allergenic substances to skin is followed by hypersensitivity more often than when a drug is given orally. This is especially true when the skin is inflamed. Further, the combination of an antigenic substance with adjuvants tends to increase the incidence of hypersensitivity; this has been shown to be the case experimentally in animals as well as in man.

Drug Allergy

A wide variety of drugs is capable of producing reactions in man which are due to altered tissue reactions. This is the largest group of allergies and in most instances they are characterized by absence of demonstrable antibody in circulating blood. Reactions of the tuberculin type may follow the injection of the allergen, or a patch test may be positive. In most cases of drug allergy, however, no local lesion can be produced and the allergic reaction, usually systemic only, appears when the drug is absorbed into the circulation.

There are a number of drugs that produce reactions that are analogous to serum sickness in their clinical features but vary in their immunologic reactions. They are the reactions that follow arsphenamines, "erythema of the ninth day," Nirvinol sickness, sulfonamide sickness, and reactions following penicillin, streptomycin and other anti-infective drugs.

From many studies it seems wholly justifiable to say that many so-called side reactions following the administration of the sulfonamides, penicillin, or streptomycin as well as some of the other chemical drugs, are analogous to serum sickness. These side reactions are due to a sensitization to the chemical or to one of the radicals of which it is composed. The reactions to drugs appear in the form analogous to normal serum sickness, immediate or accelerated serum sickness. It should be repeated that reactions following drugs, that are analogous to serum sickness clinically, differ in detail that specific antibodies have not been demonstrated so far in the serum by in vitro tests, and that skin reactions to the specific drug are rarely obtained.

It is recognized that if symptoms and signs analogous to serum sickness appear following use of sulfonamides or penicillin, and it is impossible to detect antibodies against the specific chemical either by skin tests or by examination of the blood, the question may be raised concerning the mechanism of reaction. That such reactions are due to hypersensitivity to the drug seems clear since if one waits until the initial reaction subsides and then gives a test dose of sulfonamides by mouth or penicillin by injection an immediate or accelerated reaction occurs. In some instances it is so abrupt and severe it is alarming.

Moreover, it was first demonstrated by Landsteiner, Jacobs and Chase that guinea pigs can be sensitized with a pure unconjugated chemical. This was accomplished by direct application of the chemical to the skin or by intraperitoneal injection. Following an appropriate period of exposure, usually twenty-one days, the application of the pure chemical to the skin produced a typical local reaction, while the intravenous injection of the chemical conjugated with protein caused anaphylactic shock. Conjugation of chemicals with animal proteins or sera serves as an antigen that is highly specific. The specificity of the antigen resides with the chemical radical and not with the conjugated antigen nor the protein fraction. It is pertinent to recall that guinea pigs can be sensitized to arsphenamine so that typical skin reactions can be obtained by intracutaneous injection

and anaphylactic shock was produced by intravenous injection of the pure chemical uncombined with protein. It would appear, therefore, that sensitization of humans to chemicals may result from sensitization to the chemical alone, or to sensitization of the chemical conjugated with body protein.

Sulfonamides

In the case of sulfonamides it has been shown that guinea pigs can be sensitized to azo proteins prepared from sulfonamides. The reactions are not absolutely specific for there may be inter-reactions between various sulfonamides. It has been demonstrated that when sulfonamides are given to man that the serum albumin will bind the sulfonamides leaving only a portion of the drug free to dialyze. Penicillin is also bound to protein in the blood in a loose combination. In case of sulfonamides, combination with protein is highest with sulfathiazol. This may be significant inasmuch as this sulfonamide causes the highest number of reactions.

The lack of specificity to sulfonamide reactions in animals carries over to man. Sulzberger, Kanof, Baer and Lowenberg found that 90 per cent of patients had cross reactions. Dowling, Hirsh and Lepper demonstrated recurrences of sensitization reactions in 69 per cent when the same sulfonamide was used as the test dose but only in 17 per cent when another drug of the group was substituted. The lack of absolute specificity may suggest that patients are not sensitized to the entire drug but may be sensitized to a single radical of the compound that conjugates with body proteins. It is not far fetched to suggest that in sulfonamide intoxication at least, agranulocytosis is due to sensitization to one radical, hemolytic anemia to another, hepatitis to another, while the vast majority of instances occurring within seven to nine days might be evidence of sensitization to one or more radicals common to the entire group.

In any event, it is well to recall that sensitization to chemicals is not infrequent and when any new drug is developed and tested one is on guard to look for signs of sensitization—those resembling serum sickness, causing liver damage, causing bone marrow damage, causing damage to the central nervous system, and other organs.

Penicillin Sensitivity

Reactions following penicillin therapy are those of contact dermatitis, or they are analogous to serum sickness. Rarely the reactions are severe and resemble angioneurotic edema and acute anaphylactic shock with asthma. Mucous membranes of the mouth and throat become sensitized to penicillin following use of troches or lozenges.

A wide variety of reactions to penicillin have been recorded and reviewed by several authors and one of the more extensive reviews is that of Brown. From his analysis of reported cases in the literature, he comes to the following conclusions: "reactions occur most frequently in patients who have had several courses of penicillin. The continuation of penicillin treatment of a patient who has reacted to penicillin with urticaria may or may not be tolerated. Skin tests are unreliable in predicting the occurrence of reactions and the antihistamine drugs may or may not control the reactions and permit the continuation of penicillin therapy."

It is clear that hypersensitive reactions arise most often following its application to skin in the form of ointment, especially when the skin is inflamed. Sensitization is also common following instillation of penicillin into the conjunctivae. It is least common following oral administration. Following intramuscular injection of aqueous solutions, incidence of hypersensitivity is about 3 per cent. Following injection of penicillin in oil, especially when combined with wax, the incidence of reactions is higher and varies from 5 to 7 per cent of cases.

There is another type of reaction following penicillin that was recognized early in the course of its use that deserves comment, that is, reactions in skin at the site of previous trichophyton infections follow-

ing injection of penicillin. There is evidence that there are cross reactions between penicillin and certain strains of trichophyton. Cormia, Lewis and Hopper have demonstrated cross reactions between penicillin and trichophyton in animals and express the opinion that there is a common antigen in these two materials.

Also, it has been demonstrated that some patients who receive penicillin in heparin or in beeswax may become sensitive to either heparin or beeswax.

It seems plain then, a certain number of patients become sensitized to penicillin. In some, reactions are analogous to serum sickness; in others the reactions are those of contact dermatitis, Arthus's pheromenon, or acute anaphylactic shock.

Streptomycin

Like penicillin, skin eruptions are observed following streptomycin in about 5 to 7 per cent of patients. Reactions are often transitory so when the patient continues to require treatment for his infection, streptomycin can usually be continued and eruptions will disappear. In about 15 per cent of patients once the rash appears, it continues to become worse so it is necessary to stop streptomycin. Duration of rash is between one and eight days in most patients when streptomycin is continued. In those in whom streptomycin is discontinued it disappears in one to three days in about two-thirds of patients and within a week in about 20 per cent, but it lasts about two weeks in 10 per cent of patients. Fever occurs with skin eruptions in about a third of cases.

Other signs of allergic reactions following streptomycin are eosinophilia and arthralgias.

The most disturbing and serious reactions following streptomycin are disturbances of the eighth nerve, vertigo, tinnitus and deafness. With improvement of purity of streptomycin and with development of dihydrostreptomycin, incidence of these features has decreased. It is extraordinary that the latent period between the injection of streptomycin and development of eighth nerve disturbances has varied greatly with the preparations used. During the early period of clinical investigation, when relatively impure streptomycin was used, the majority of eighth nerve disturbances were observed within the first two weeks of treatment. The overall incidence was 6.9 per cent. Later, when prolonged treatment was employed for tuberculosis the incidence was higher but the latent period between onset of treatment and development of neurological disturbances was longer, averaging seventeen to twenty-one days. It seems plain that patients who receive streptomycin for less than two weeks rarely develop eighth nerve disturbances. About 15 to 20 per cent of patients with tuberculosis who receive 1 gram a day for 42 days may develop vertigo. With dihydrostreptomycin the incidence is lower on these dosage schedules.

Treatment of Drug Allergy

In general it can be said that treatment of drug allergy is unsatisfactory. It consists of withdrawing the drug and symptomatic treatment. Duration of symptoms and signs of allergy vary from a few days to six or more weeks depending upon type of reaction.

Symptomatic treatment has improved with introduction of antihistamine drugs. These drugs relieve skin eruptions, especially urticaria and itching. They are less effective in controlling arthralgias, if present. Antihistamine drugs are also local anesthetics so some of them relieve itching when applied locally. Injections of epinephrine and ephedrine by mouth are helpful for acute urticaria and itching. Four per cent benzyl alcohol as a local anesthetic is likewise useful. Attempts at desensitization are usually unsatisfactory.

The time factor is important in deciding whether a patient will react to a second injection after he has had experience with a first injection. The longer the interval of time between use of a drug like penicil-

lin, the less likely the patient is to show immediate and accelerated reactions. In case of sensitivity to penicillin or streptomycin, it is often possible to continue the drug in spite of skin eruptions. In case of other drugs this is not possible and they should be discontinued at once.

If it is known that patients have had a previous reaction to a drug, then a similar drug should not be administered a second time without necessary precautions—a small test dose of the drug. If no reaction to the test dose occurs then one may proceed with treatment cautiously.

HEMORRHAGE AND SHOCK IN OBSTETRICS*

A REVIEW OF MATERNAL MORTALITY IN MONTANA FROM JANUARY 1, 1940, to DECEMBER 31, 1948

An earlier report from the Maternal and Child Welfare Committee of the Montana Association discussed 168 maternal deaths and deaths associated with pregnancy occurring in Montana during the six year period from January 1, 1940, through December 31, 1945. During 1946, 1947, and 1948 there were fifty more deaths, making a total of 218 deaths from January 1, 1940, through December 31, 1948. Forty of these were due to diseases associated with pregnancy, leaving 178 deaths due directly to maternal causes. Of these 178 deaths, hemorrhage was found to be the cause or an important contributing factor in sixty-five cases, or 37 per cent. More than one out of every three women who died of obstetrical causes in Montana during this period died with hemorrhage. This report is a study of the deaths from hemorrhage and shock.

The sixty-five deaths from hemorrhage may be classified into five groups according to cause: (1) hemorrhage from abortion, (2) hemorrhage from ectopic pregnancy, (3) hemorrhage antepartum, i.e., from placenta previa or premature separation of the placements, (4) hemorrhage postpartum, and (5) hemorrhage as the important contributing factor to death when other obstetrical complications existed.

Hemorrhage From Abortion

Of thirty-two maternal deaths due to abortion, hemorrhage was the major cause of death in five. Three died from prolonged hemorrhage after spontaneous or induced abortion at home with no medical care or treatment. One died in a hospital after curettage had been delayed in the face of continued hemorrhage. Blood was given following curettage, and a daughter of the patient was the donor. A severe transfusion reaction followed. The patient died of anuria and cardiac failure. Rh incompatability may have been a factor. The fifth patient died in a hospital. Bleeding persisted after curettage and packing of the uterus. The patient lived ten hours after the curettage. No transfusion was given. She died of blood loss and shock.

Hemorrhage From Ectopic Pregnancy

There were eleven maternal deaths due to this complication. Four were due primarily to blood loss and the other seven died of complications made much worse by the hemorrhage. Of those dying primarily from hemorrhage, one was moribund on admission and died in seven hours with no transfusion or surgery. In two, surgery was delayed too long in the face of continued bleeding and increasing shock. One of these, in whom surgery had been delayed, developed severe shock and was then operated upon using spinal anesthesia. As spinal anesthesia may reduce blood pressure markedly in normal patients, this committee strongly advises against its use in the presence of hemorrhage. The last patient was operated upon promptly but received no

*Prepared by the Maternal and Child Welfare Committee of the Montana State Medical Association and the Maternal and Child Health Division of the Montana State Board of Health.

Read at the interim session of the Montana State Medical Association in Helena, Montana, January 28, 1950, by Dr. R. E. Mattison.

Montana State Medical Association Maternal and Child Welfare Subcommittee on Obstetrics: Dr. F. L. McPhail, Chairman; Dr. E. L. Hall, Dr. L. A. Barrow, Dr. L. W. Brewer, Dr. H. B. Campbell, Dr. G. A. Carmichael, Dr. Maude Gerdes, Dr. J. E. Hynes, Dr. R. E. Mattison, Dr. C. W. Pemberton, Dr. S. W. Preston, Dr. A. E. Ritt.

Montana State Board of Health Maternal and Child Health Division: Dr. B. K. Kilbourne, Dr. Belle C. Richards.

blood even though death did not occur until eight hours after surgery. During this time intravenous glucose, caffeine, and adrenalin were used. There is no substitute for blood in these emergencies.

Hemorrhage Antepartum From Placenta Previa and Premature Separation of the Placenta

Twelve of the maternal deaths were in this group. Six from placenta previa and six from premature separation of the placenta. The factors contributing to continued hemorrhage and eventual death were essentially the same in those with placenta previa and with premature separation of the placenta. Because of this, the common errors leading to death in these two situations will be reviewed together. Diagnosis of the cause of hemorrhage was freuently incorrect. Too often it was made only after the patient had continued to bleed for a long time and then only when severe hemorrhage and shock forced the issue. Patients were permitted to bleed for long periods and then drastic methods were used to induce labor. Too frequently no attempt was made to diagnose the cause of the bleeding and as a result severe bleeding would come as a complete surprise. Consultation was obtained in only one case. Even that consultation was inadequate. The consultant disagreed with cesarean section. Further attempts to induce labor were instituted, allowing blood loss from a premature separation of the placenta to continue.

Accouchement forcé in the face of severe hemorrhage and shock, such as manual dilatation of the cervix, version and extraction, high forceps extraction and Cesarean section with a dead baby were all utilized in some instances. Blood was used rarely—many times not until after continued blood loss had resulted in shock and some operative procedure had been performed. When blood was given, it was usually only in 500 cubic centimeter amounts. No attempt was made to replace the full amount of blood lost or to prepare for possible future hemorrhage.

Hemorrhage Postpartum

Twenty-two patients died of postpartum hemorrhage. This situation in most instances, should not result in death. These patients died from a various combination of factors:

1. Poor Antepartum Care. Too little was done to prepare a patient for possible postpartum hemorrhage. Blood counts were rarely made to show the presence of existing anemia. Iron was given rarely and little attention paid to the protein content of the patient's diet. Typing and Rh determination had not been recorded on any of these patients.

2. Poor Management of the Third Stage. One patient, delivered by a midwife, had an inversion of the uterus associated with severe traction on the cord. Five patients were returned to their beds for varying periods of time with retained placenta. Two died with the placenta still in the uterus. One died after hysterectomy for retained placenta which was performed some time after delivery with continued severe bleeding. The vaginal tract and cervix were rarely inspected for lacerations even in the face of continued bleeding. Continued abuse of the uterus postpartum, both to deliver the placenta and to get it to contract, were common. Various combinations of oxytocics were repeated and intravenous glucose was given, but usually in these patients no blood was made available. If blood was used, very little effort was made to replace the amount lost—one pint might be given even though the estimated amount lost was 1,000 to 1,500 cubic centimeters or more.

3. Failure to Recognize Signs of Shock. Repeatedly patients would continue to bleed with little or no blood replacement. The blood pressure would drop the pulse increase and air hunger develop. Eventually cyanosis and cardiac failure would occur with only stimulants being ordered. The absolute necessity of replacing blood lost in adequate amounts is well recognized. The recognition of minimal bleeding and preparation to treat greater blood loss will save many lives.

4. Incompatibility of Blood. There were

three deaths from severe reactions occurring after transfusion. Many of these could be avoided with careful typing, cross-matching, and Rh determination.

5. Miscellaneous. Multiparity with a history of bleeding in previous deliveries should have alerted the attendants in some instances. These factors, namely the above, plus long hard labors and an exhausted patient, make a fertile field for some postpartum hemorrhages.

Hemorrhage as a Contributing Factor

There were fifteen patients that died of other causes but in whom an associated hemorrhage was felt to be a major factor in the ultimate death. Three died of ruptured uterus. One had large amounts of pitocin during a prolonged poor first stage and also during a prolonged second stage with an eventual rupture of the uterus with hemorrhage and death. One, with an impacted breech and with the breech dilating the vulva over a prolonged period, eventually resulted in uterine rupture. Another, having had a previous cesarean section, was given analgesia repeatedly during a prolonged labor with poor pains. Her uterus eventually ruptured and she died undelivered. Two died of infection after section for placenta previa with hemorrhage. No blood was given, infection and death resulted. Four were said to have had pulmonary emboli shortly after a delivery associated with hemorrhage in which blood was not replaced. One had cardiac failure as the cause of death after premature separation of the placenta with massive hemorrhage and no blood replacement. One died of asphyxia from aspirated stomach contents when ether anesthesia was given in treating bleeding during pregnancy. Two died of transfusion reactions which may have been Rh incompatibilities. One died of an amniotic fluid embolism associated with anemia.

After reviewing these maternal deaths from hemorrhage your committee feels that the following suggestions would help materially in reducing the maternal mortality in each group.

Abortions—Abortion is always a possibility in all cases of abnormal bleeding. Treatment should be instituted early and not after prolonged bleeding and shock have developed. When bleeding is marked the abortion is inevitable and the products of conception should be removed from the uterus early, gently, and completely. Blood lost should be replaced early. Antibiotics and adequate chemotherapy should be used routinely during convalescence.

Ectopic Pregnancy—The possibility of an extra-uterine pregnancy as the cause of irregular bleeding must always be remembered. The diagnosis may be overlooked unless the possibility is always considered. The treatment is always surgical and if possible surgery before rupture, continued bleeding, and shock have developed. Adequate replacement of blood before, during, and after operation is mandatory. No other surgical procedures should be done at the time of operation for an ectopic pregnancy. The routine postoperative use of antibiotics and chemotherapy will reduce the number of deaths occurring from infection after surgery.

Anterpartum Hemorrhage—Good medical antepartum care by a physician will prepare patients for possible blood loss. Whenever hemorrhage or even small amounts of bleeding occur during pregnancy, the cause must be determined if proper treatment is to be instituted. Blood already lost must be replaced and preparations made for possible future hemorrhage during the diagnostic and therapeutic procedures. Early consultation regarding the cause of the bleeding, the method of delivery and the choice of anesthesia should always be obtained. Gentleness during delivery and not accouchement force will prevent further complications. Blood must be used in amounts adequate to replace the blood lost.

Postpartum Hemorrhage — Good antepartum care and the preparation of all patients during pregnancy for a possible postpartum hemorrhage will save many lives. The history of previous postpartum hemorrhages should be heeded. The routine use of iron and a high protein diet during pregnancy will prevent most anemias and will prepare a patient for a possible hemorrhage.

Good intrapartum care, including adequate rest and attention of fluid balance and gentle and slow delivery will prevent most hemorrhage and shock.

After delivery, the third stage should be conducted gently. The placenta should be delivered carefully before the patient is returned to her bed. If it does not deliver easily soon after delivery, gentle manual removal should be done. With hemorrhage, the birth canal should be carefully inspected for lacerations and the placenta examined for completeness. Blood should be started at once and continued until the blood lost has been replaced. It is important to recognize that continued bleeding, even though small, soon adds up to a large blood deficit. Early replacement of blood loss and control of bleeding is imperative. One must be on guard for the early signs of shock and blood must be given promptly. Oxytocics, intravenous glucose and caffeine will not prevent deaths from hemorrhage. The patient must be carefully watched for at least one hour after delivery of the placenta. Too often the patient is delivered and returned to bed and the physician recalled within an hour because of hemorrhage.

Other Causes—An adequate history, good antepartum care including blood counts and treatment of anemia during pregnancy will prepare many patients for these possible complications of delivery. Care during labor, gentleness during delivery, early consultation and replacement of all blood lost will save many patients after these complications have occurred.

Summary

Sixty-five deaths from hemorrhage occurring in the period from January 1, 1940, to December 31, 1948, have been reviewed. Five were due to hemorrhage following abortion, eleven from hemorrhage associated with extra-uterine pregnancy, twelve were from hemorrhage antepartum, either placenta praevia or premature separation of the placenta, twenty-two were from postpartum hemorrhage and fifteen died of other causes but hemorrhage was thought to be an important contributing cause. The committee believes that the following suggestions will aid the reduction of maternal deaths from hemorrhage: 1. Good antepartum care. 2. Preparation of the patient for possible hemorrhage by the routine use of iron and reasonably high protein diet. Routine typing and Rh determination of every patient will make blood transfusion available with greater rapidity. 3. Earlier and more frequent use of consultation to determine the cause of bleeding and the best method of delivery. 4. Always have blood available for the obstetrical patient—either in a blood bank or at least with a known list of available donors. 5. Early and adequate replacement of the blood lost. 6. Early and adequate use of the antibiotics and chemotherapy. 7. No emergency justifies the production of further injury in the interest of speedy delivery.

AMERICAN COLLEGE OF CHEST PHYSICIANS CASH AWARD

The Board of Regents of the American College of Chest Physicians offers a cash prize award of $250 to be given annually for the best original contribution, preferably by a young investigator, on any phase relating to chest disease. The prize is open to contestants of other countries as well as those residing in the United States. The winning contribution will be selected by a board of impartial judges and the award, together with a certificate of merit, will be made at the forthcoming annual meeting of the College to be held in Atlantic City, New Jersey, June 7-10, 1951.

The College reserves the right to invite the winner to present his contribution at the annual meeting and to publish the essay in its official publication, "Diseases of the Chest." Contestants are advised to study the format of "Diseases of the Chest" as to the length, form and arrangement of illustrations to guide them in the preparation of the manuscript.

The following conditions must be observed:

1. Five copies of the manuscript, typewritten in English, should be submitted to the Executive Office of the College, 500 North Dearborn Street, Chicago 10, Illinois, not later than April 1, 1951.

2. The only means of identification of the author or authors shall be a motto or other device on the title page and a sealed envelope, bearing the same motto or device on the outside, enclosing the name of the author or authors.

Prize Essay Award Committee—Eli H. Rubin, M.D., F.C.C.P., Chairman; Charles P. Bailey, M.D., F.C.C.P.; Hugh L. Houston, M.D., F.C.C.P.; David Salkin, M.D., F.C.C.P.; Henry C. Sweany, M.D., F.C.C.P.

HIRSCHSPRUNG'S DISEASE ASSOCIATED WITH ANAL STENOSIS AND SUBHEPATIC CECUM

GORDON J. HARMSTON, M.D.
LOGAN, UTAH

Hirschsprung's disease is a rare congenital disorder of the large intestine which results in dilatation and hypertrophy of the affected parts of the colon. Since the publication of Hirschsprung's paper in 1888, this condition has aroused much interest. The complete literature has been reviewed several times and many cases have been presented with extended discussions concerning etiology. Every possible developmental, obstructive, and neurogenic defect capable of producing dilatation and hypertrophy of the colon has been considered as a cause of primary magacolon. These may be broadly divided into mechanical developmental causes, which occur rarely; deranged neuro-muscular mechanisms; and inflammatory lesions. This last cause was first described by Walker in 1893, but now the chronic colitis often found is attributed to the effect of chronic stasis.

Among the congenital defects which have been described (although rarely) are partial atresia of the anal canal, rectum or sigmoid, partially imperforate anus and incomplete development of the musculature of the rectosigmoid. There is no agreement as to the site of the primary obstruction, some suggesting the anal canal and others the rectosigmoid. Fenwick in 1900 and Kastner in 1921 each reported a case of megacolon that appeared to be due to spasm of the anal sphincter. Bensaud in 1926 recorded a case of megacolon in a nine year old patient in association with spasm at the anal sphincter. Cure followed stretching. In this case thirteen pounds of feces were evacuated following this procedure. David reported three cases of megacolon occuring in association with congenital rectal stricture. Many observers have stressed the importance of extreme mobility of the sigmoid or the drag of a sigmoid overloaded with meconium, causing obstruction with dilatation and hypertrophy. Megacolon has been attributed to reflex spasm of the anal sphincter. Often, however, no evidence of spasm or hypertrophy is found and dilatation is not followed by improvement. Obviously, any obstructive lesion, such as lymphopathia venerum or scirrhus carcinoma of the rectum or anus, may produce a clinical picture resembling megacolon, but these should be excluded from a discussion of primary megacolon.

Since in many cases of primary megacolon a mechanical cause can apparently be excluded, the theory of deranged nervous mechanism has gained wide acceptance. Hyperactivity of the sympathetic or hypoactivity of the parasympathetic innervation of the distal colon are both theories that may explain many cases. Perhaps a lack of coordination between the proximal and distal colon will explain the majority of cases of primary megacolon. Sympathetic stimulation may depress colonic peristalsis and cause spasm at the internal anal sphincter, while stimulation of the presacral parasympathetics may cause opposite effects. Wade and Royle and others found in some cases that section of the lumbar sympathetic nerves or induction of spinal anesthesia would produce increased colonic activity with relief of symptoms. In many cases, however, these methods failed or relief was temporary. Adamson and Aird published a paper in which they described removal of the parasympathetic nerve supply from the distal end of the colon of cats. The result was tremendous dilatation of the segments proximal to this region. White and Smithwick cite experiments to show that following sympathectomy there is no change in the basic tonus or peristalsis of the bowel. According to Alvarez, the effects of stimulation of the sympathetic and parasympathetic nerves to the colon are so variable that consistent results are difficult to obtain. Furthermore, the reaction in one portion of the colon may be opposite to that in another. Because of these difficulties, some physiologists state that the main effect of lumbar sympathetic stimulation is motor

while others claim it is inhibitory. We may conclude that the role the involuntary nervous system plays in megacolon is still a puzzle and that operative removal of either the lumbar sympathetic or sacral parasympathetic fibers does not give promise of consistent results.

Hurst believes that underactivity of the sacral parasympathetics with achalasia of the anal spincter is the primary cause of magacolon with changes occurring in the bowel due to the obstruction thus produced. He explains lack of response by anal dilatation as being due to residual achalasia or advanced changes in the bowel wall.

The most marked pathologic changes in primary megacolon are found in the sigmoid. In some advanced cases the whole colon is involved, but usually the dilatation and thickening diminish as the cecum is approached. Usually the mesentery of the sigmoid is elongated and thickened, containing enlarged lymph nodes. The bowel is leathery to touch and may be greatly thickened. The circular muscular coat is usually enormously thickened, the other layers less so. Histologic changes, with degeneration and inflammation of the cells of Auerbach's plexus, have been reported, but often these are not present.

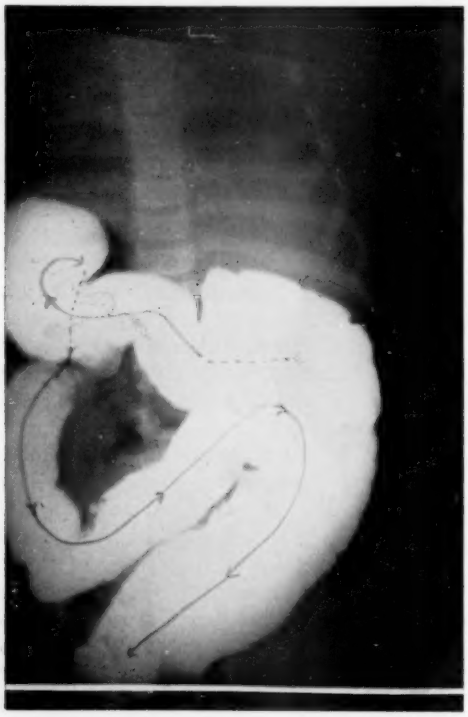

Fig. 1. Initial barium enema showing extent of colonic dilatation, lack of haustral markings, right pelvic colon and course of injected barium. Because of overlapping, the position of the cecum is not defined on the x-ray films, but was easily seen in oblique positions on fluoroscopy.

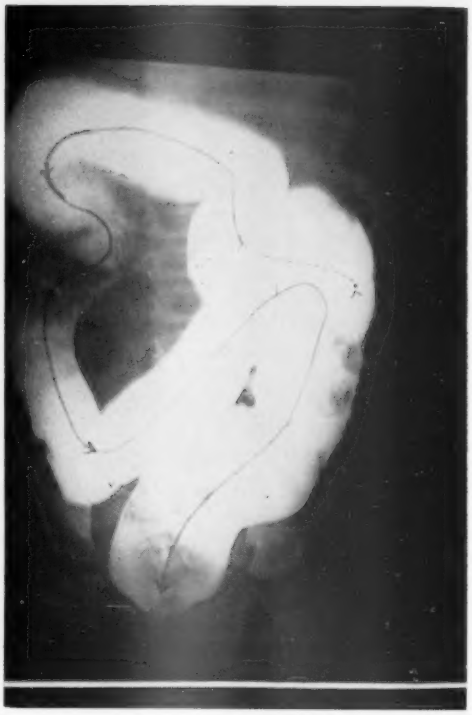

Fig. 2. Initial post-evacuation film showing over 90 per cent retention of barium.

The incidence of congenital megacolon has been well-studied. Fenwick reviewed 30,000 necropsies and found three cases, an incidence of one in ten thousand. In 1934, Lightwood found one case in every 2,600 cases admitted to the London Hospital for Sick Children. Cases have been found at all ages from a seven-months fetus to eighty years. The majority are found in infants under one year of age and a familial incidence has been noted by several authors.

Congenital megacolon in association with subhepatic cecum must be extremely unusual. Kantor in a review of 1,049 patients subjected to roentgen studies of the colon found only three cases of complete nondescent of the cecum. None of these was in

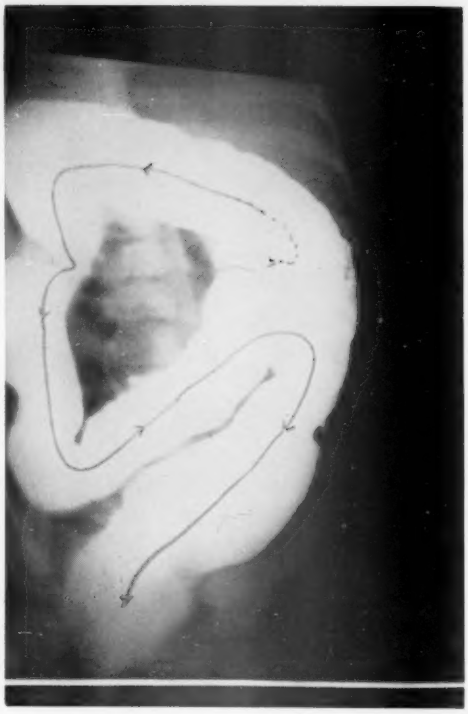

Fig. 3. Film taken after one month of regular anal dilatations.

association with Hirschsprung's disease. Incomplete descent of the cecum, so that it occupies the upper half of the iliac fossa, occurs in about 5 to 6 per cent of patients who are examined routinely by barium enema for various disorders. A review of the available literature failed to reveal a case report of congenital megacolon associated with subhepatic cecum. Where the cecum is attached to the liver and the proximal transverse colon hangs down drape-like, the proximal segment may be confused with ascending colon unless examination is made in the oblique positions. Usually the right iliac fossa is occupied by ileum but in about 5 per cent of the cases these are replaced by a loop of pelvic colon. Kantor describes this as a subtype of redundant colon with the title, "pelvic colon to the right." The case to be described also presents this feature. The surgical implications of these anomalies are obvious when operation for appendicitis is performed.

CASE REPORT

A 14-month-old female infant was first seen September 27, 1949, because of obstinate constipation. The mother stated that the baby weighed six pounds at birth and was entirely breast-fed until the age of eight months. For the first few months of age, the only abnormality noted was extreme straining at stool, even though all stools were soft. At approximately five months of age, it was noted that the infant had ceased to have regular movements. Short periods of diarrhea alternated with prolonged constipation, and the stools consisted only of stony-hard, rounded scybalous masses with extremely fetid odor. Periods of diarrhea appeared about every six weeks and, except for these episodes, no bowel movements occurred. The infant's abdomen became enlarged and frequent attacks of abdominal pain occurred. This situation persisted in spite of frequent enemas and use of laxatives.

Physical examination revealed a female infant who was pale but who appeared to have developed normally for her age. Positive findings were as follows: Height, 32 inches; weight, 22 pounds. The abdomen was extremely prominent, measuring 55 cm. at the umbilicus. The skin was thin and taut and the veins were prominent over the lower abdomen. On percussion, a tympanitic note was elicited. Palpation revealed stony hard nodules ranging from one to three centimeters in size throughout the entire abdomen but especially in the right lower abdomen. Rectal examination was impossible because only the tip of the little finger could be

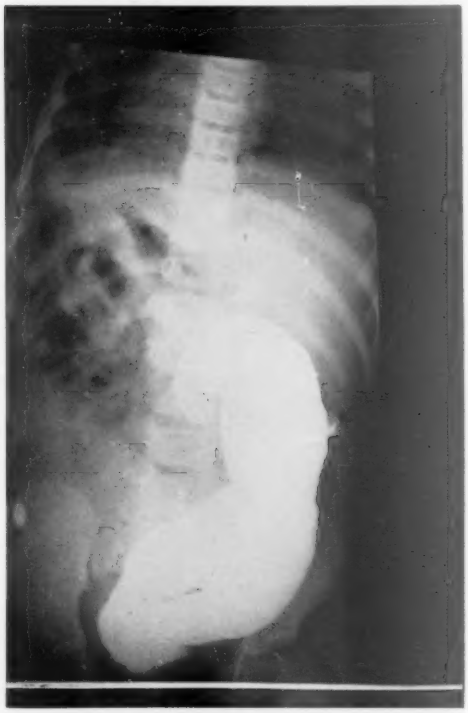

Fig. 4. Post-evacuation film taken after one month of anal dilatations. Notice emptying of all colon except distal colonic loop. Note flecks of barium in terminal ileal loops to right of colonic loop.

introduced into the rectum where a dense stool mass was felt. Laboratory examination revealed hemoglobin of 80 per cent, RBC of 4.0 million, and normal urine.

Following four weeks of graded rectal dilatation and mineral oil by the mouth, the palpable masses in the abdomen had disappeared and the patient became less subject to abdominal pain. Frequent enemas were necessary to remove hard impacted fecal masses from the rectum. The anal ring now presented only slightly increased resistance to the dilating finger.

A barium enema was performed with the following findings (Figs. 1 and 2): The barium entered a greatly enlarged rectum. The ascending sigmoid loop rose high through the right pelvis with the top of the loop located beneath the liver. The descending sigmoid loop reached to the left ilia fossa; the descending colon then extended from here to the splenic flexure, where it doubled upon itself and the barium flowed transversely across the abdomen to beneath the liver, where the ileum was observed to fill as it entered the cecum below and from the left. The superior edge of the cecum followed the exact course of the inferior liver edge. Crying and elevation of the patient failed to alter this curve. The entire colon appeared to be involved in the process; there were no segmental markings nor peristaltic activities. Approximately one and one-half quarts of barium solution was required to fill the colon.

After prolonged attempts at evacuation, another film was taken which revealed 90 per cent retention. The barium was subsequently removed by dilatation, mineral oil and enemas.

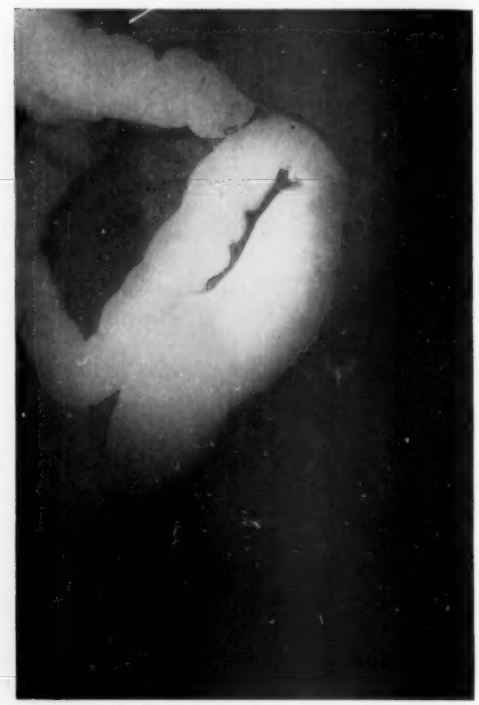

Fig. 5. Note the further decrease in size of colon with occasional haustral markings.

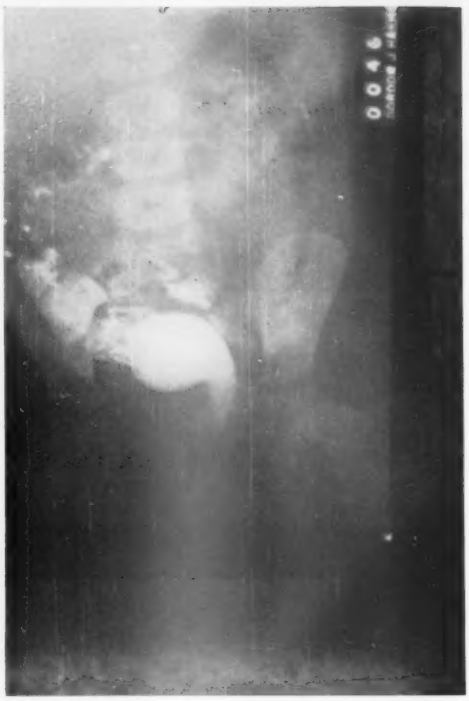

Fig. 6. Evacuation nearly complete with normal haustrations.

After another month of dilatation and daily mineral oil, the child was having fairly regular stools of normal color and consistency. The anal ring presented normal resistance to the examining finger. The abdomen at this time measured 43 cm. at the umbilicus, having decreased 12 centimeters.

A barium enema at this time confirmed the findings of the previous examination (Figs. 3 and 4). However, peristaltic movements were seen in the proximal colon and some barium was expelled during the examination. The evacuation film showed total evacuation except from the rectum and adjacent sigmoid loop, with flecks in the terminal ileum. The proximal colon had apparently regained some of its tone as a result of prolonged decompression. No haustral markings were apparent, however, in the descending sigmoid loop or rectum.

Comment

Seven months later the patient had gained five pounds in weight, was having regular daily bowel movements of normal consistency without use of medications, and with occasional rectal dilatations to prevent recurrence of stricture. Her general health was greatly improved with an increase in vitality and appetite.

A repeat barium enema at this time revealed a generalized decrease in the diam-

eter of the colon with more resistance to the inflow of barium (Fig. 5). The evacuation film (Fig. 6) revealed a further marked improvement in the ability of the colon to empty itself associated with normal haustrations throughout nearly its entire length.

This case appears to substantiate the importance of a stenotic anal ring in the etiology of Hirschsprung's disease; prompt improvement followed anal dilatation and oral mineral oil as the only therapy. In all probability, without treatment of the anal stenosis at an early age this patient would have developed permanent dilatation and immobility of the entire colon. Anal stretching would then fail to produce significant results and it would appear that the entire syndrome was based upon a neuromuscular dysfunction. Perhaps in many cases of this type where anal or colonic stenosis is present there are such advanced pathologic changes in the bowel wall that spontaneous improvement is impossible even though the primary etiologic factor is corrected.

The present concept of Hirschsprung's disease based upon stricture or narrowing of portions of the colon or anal canal seems fully supported by the progress noted in this case.

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INTEGRATION OF PUBLIC HEALTH SERVICES FOR THE PREVENTION AND CARE OF PREMATURITY*

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The Colorado program for reducing mortality from prematurity started with a statistical study of the causes of infant deaths in the state by the Maternal and Child Health and the Public Health Nursing Sections of the State Department of Public Health in 1945. A report based on the study brought into sharp focus the extremely high proportion of infant deaths attributable to prematurity both in Colorado and in the United States, and strengthened the interest of the medical profession in the problem. (See Table 1.) As a result, ways of lessening the toll were considered in 1946 at a series of conferences with representatives of the State Medical Society, University of Colorado Medical School and Center, and the United States Children's Bureau. It was necessary to formulate long range, statewide plans under limited funds and personnel. In the course of time, however, the fundamental needs were clarified, and by the spring of 1947 a practical program with five basic purposes had been inaugurated.

The objectives of the program, although separately enumerable, require the coordinated services of many divisions of the state and local health departments and of cooperating medical institutions and physicians. The aims are: (1) to prevent prematurity or mitigate the degree of immaturity, if possible; (2) to provide professional training and advisory services for physicians and nurses from all parts of the state and from other states; (3) to encourage and assist communities in providing adequate facilities and equipment for premature care; (4) to stimulate clinical, statistical and laboratory research and application of the findings; and (5) to discover means of relieving the financial burden of the costly hospital care needed for the prematures. Today, it is possible to report progress toward each of these goals.

*Presented before the annual meeting of the New Mexico Public Health Association at Raton, May 18, 1950. The author is Executive Director, Colorado State Department of Public Health.

TABLE 1

Infant Mortality Under One Year of Age From All Causes and From Prematurity as the Sole or Primary Cause, United States, and Colorado, Place of Residence 1943-1948

Year	Deaths Under One Year of Age: Number Colorado	Rate per 1,000 Live Births: Colorado	Rate per 1,000 Live Births: United States	Due to Prematurity as the Sole or Primary Cause†: Colorado Number	Colorado Per Cent	United States Per Cent
1943	1,228	50.4	40.4	337	27.4	29.2
1944	1,183	49.4	39.8	317	26.8	29.8
1945	1,188	50.5	38.3	317	26.7	30.2
1946	1,180	40.0	33.8	434	36.8	35.9
1947	1,234	37.5	32.2	421	34.1	34.4
*1948	1,260	38.4	32.2	372	29.5	35.1

Source: National Office of Vital Statistics, except the provisional facts for Colorado for 1948 from the Colorado State Department of Public Health.

*Provisional figures for the United States based on a 10 per cent sample of the certificates for 1948; provisional figures for Colorado based on State Department of Public Health tabulations by place of residence for 1948.

†Coded according to the Fifth Revision (1939) of the International List of Causes of Death.

Prevention

Much is yet to be learned regarding causes of premature labor and immaturity at birth, but there is general agreement concerning the importance of adequate prenatal care and dietary guidance as preventive measures. The obligation to provide such preventive services through public health channels, particularly for the benefit of the lower income groups, is evident. Statistical studies in Denver and elsewhere have shown higher than average incidence of prematurity in hospitals serving public welfare groups and also inadequate prenatal care in a high percentage of these premature cases. Furthermore, it is known that various communicable and controllable diseases such as syphilis, German measles and diabetes are causative conditions in some instances. It is clear, therefore, that prenatal clinics, public health nursing services, public health nutrition programs, compulsory premarital and prenatal blood tests, and other disease control measures are integral parts of prematurity prevention.

These basic public health services are becoming increasingly widespread and effective in Colorado as local health organization progresses and as the State Health Department's functions are expanded. Five single-county and four multiple-county local health departments now serve two-thirds of the population, including Denver. Public health nurses and sanitarians also are employed in some of the unorganized counties. Advisory medical, public health nursing, nutrition, sanitation, medical, social and other services are provided through the State Health Department to the local public health personnel. At the first of this year, approximately 150 public health nurses other than school nurses were employed in about one-half of the counties of the state. In addition to public health nursing services in Denver, approximately 2,800 prenatal nursing visits a year were provided in the period 1948-1949, and about 350 expectant mothers attended prenatal clinics conducted under public health programs each year.

Training

The premature infant care center which was established in Denver in 1947 is situated at the University of Colorado Medical Center. The project is a joint enterprise of the State Health Department, the Denver Health Department, the Tri-County Health Department, the State Medical Society, and the Medical Center, aided by a special grant from the United States Children's Bureau. The premature care nurseries at the Medical Center are operated not only to provide services for a limited number of premature infants born in Denver and its environs, but also to give both graduate and postgraduate training and pediatrics and obstetrical consulting service so that care for prematures can be supplied elsewhere. Smaller com-

munities fortunate enough to have one or more physicians and nurses trained at the short "refresher" courses for physicians and the more intensive lecture and practice courses for graduate nurses can offer great help to premature infants even if care must be given in ordinary newborn nurseries. Here it should be mentioned also that the main premature care and training center, such as the one in Denver, need not be situated at a medical school. Similar centers doubtless could be developed in many areas where there are adequately equipped and staffed hospitals.

During 1948 and 1949, 105 physicians representing 17 states attended refresher courses on the care of newborn and premature infants at the Denver center; and 56 trainees enrolled in the courses for graduate nurses. At the suggestion of the United States Children's Bureau a four-day institute is being planned, for 1951, for teams from state health departments. It is expected that maternal and child health directors, nursing consultants, social workers, nutritionists, and consultants in obstetrics and pediatrics will compose the teams.

Facilities and Equipment

Development of adequate facilities for newborn and premature infants is a responsibility of the Maternal and Child Health, the Hospital Facilities, and the Hospital Licensing and Standards Sections of the Colorado State Department of Public Health. The obstetrics and pediatrics consultants of the Maternal and Child Health Section, Dr. Paul D. Bruns and Dr. John A. Lichty, are also staff members of the premature care center in Denver, and this section carries the additional responsibility of distributing incubators to other areas of the state. The Hospital Facilities Section, in studying and approving plans for constructing hospitals and health centers under grants from the Federal Government, considers the maternity, newborn nursery and premature infant care needs of the various regions of the state. The Hospital Licensing and Standards Section, in close cooperation with the Hospital Facilities Section, sets requirements for acceptable maternity facilities and newborn nurseries in hospitals and also in maternity homes.

A recent national study based on information collected from hospitals which might have 50 or more premature infants a year gives striking evidence that hospitalization for the delivery of premature infants as well as for special postnatal nursery care is an important factor in reducing the fatality rates. For premature infants born in hospitals the fatality rate was 21.5 per cent in contrast with 36.6 per cent fatalities among premature infants born outside of hospitals and admitted later.

The premature nurseries at the University off Colorado Medical Center are equipped to care for 20 infants. Any baby weighing less than 5½ pounds at birth may be accepted for care at the premature nurseries if referred by a physician, public health official, or appropriate agency. For infants born within 30 miles of the center a special ambulance is available. Since oxygen is necessary for safe transport and long-distance travel is hazardous, infants born beyond the 30 mile radius cannot be accepted unless adequate care during the journey can be arranged locally.

Nineteen incubators have been distributed to other communities by the Maternal and Child Health Section. The incubators usually are kept at the local health department or a hospital, and are available also to physicians without charge. During 1949, 140 premature infants benefited from this arrangement.

Clinical and Statistical Research

A number of practical results stemming from clinical observation and research and related statistical studies have been reported by the staff of the premature care center. For example: Tentative criteria have been set regarding the birth weights and circumstances for which care at special premature nurseries is most imperative. The possibility of reducing the period of hospitalization necessary for prematures by using certain feeding mixtures has been demonstrated. Life saving results of the obstetrical approach to premature care have been shown. The value of adequate follow-up and of accurate firsthand information regarding

home environment, as obtained from public health nurses and medical social workers, has been proved in relation to discharge of the premature infants on an individualized basis in contrast to keeping all babies until a certain body weight is obtained.

Because of the small capacity of the premature infant nurseries at the Medical Center, it became necessary to restudy criteria for admission. In this connection it was concluded that if nurseries for full-term infants were of higher quality most prematurely born infants weighing between 2,000 and 2,500 grams (4½ to 5½ pounds) could be taken care of at the place of birth. This would leave only a relatively small number of infants who would require special transportation to a premature nursery. These would be most of the 30 per cent of the prematurely born infants who weigh less than 2,000 grams and that portion of the 70 per cent who weigh more than 2,000 grams who are having difficulties, the probability of which is much greater when the pregnancy or delivery is abnormal.

At the Medical Center in Denver, the obstetrical approach in prematurity care is emphasized as well as postnatal methods and follow-up procedures. Trainees are taught the latest methods of managing premature rupture of the membranes, uterine hemorrhage, heart disease, kidney disease, diabetes and acute infections with a view to prolonging pregnancy without additional maternal risk. To quote a recent report by Dr. E. Stewart Taylor and Dr. Harry H. Gordon of the Medical Center staff: "The premature nursery is on the same floor as the obstetrical service and the full term nurseries. This serves a useful purpose because it allows all parties to remain conscious of the premature problem as it relates to obstetrics. Through a strict policy of no analgesia or general anesthesia for premature labor and deliveries, through the presence in the delivery room of a person whose sole responsibility is care of the premature infant, through careful pediatric nursery supervision and specialized nursing and attention, we have been able to reduce neonatal deaths due to prematurity."

To insure adequate follow-up care for the infants after they are discharged from the premature nursery at the Medical Center, public health nurses and medical social workers have been made readily available to local physicians and the parents to assist in providing the best possible home care. If the home conditions are satisfactory and early discharge from the premature nursery can be permitted, helpful savings in money, nursing care and bed space are effected. A follow-up clinic is conducted at the Medical Center to give intensive supervision for the first six months to premature infants not under the care of private physicians.

The Records and Statistics Section of the State Health Department also makes important contributions toward analysis of the prematurity problem. Statistics on the occurrence of prematurity, as indicated by birth prior to the ninth month, and on deaths from prematurity are available according to county for the entire period 1940 through 1949. With the adoption, in 1949, of the new form of birth certificate on which both birth weight and period of gestation are recorded, the section planned supplemental tabulations which will permit analyses on both bases. In addition, a system of matching infant death certificates with the birth certificates was adopted, at the request of a committee on prematurity, in order to correlate the facts on birth weight with the causes of death.

National Office of Vital Statistics releases for 1947 (the latest year for which we have final comparative figures) and State Health Department tabulations for 1948 show that about one-third of the deaths under one year of age were attributed to prematurity as the sole or primary cause both for Colorado, as the place of residence, and for the United States. Nearly one-half of the deaths in the first month of life were assigned to this sole or primary cause. (Table 2.)

Statistics, such as these, on the sole or primary cause of death do not, of course, fully measure the size of the mortality problem associated with prematurity, or immaturity at birth—to use the new vital statistics term relating to birth weight. This condition is a subsidiary cause of many additional fatalities, a fact manifested by

TABLE 2

Comparative Infant Mortality Statistics, United States, New Mexico and Colorado Place of Residence, 1947; and Colorado, Place of Residence, 1948

Infant Mortality Indices	1947 (National Office of Vital Statistics) New Mexico	United States	Colorado	1948 (Colo. St. Dept. P.H.) Colorado
Deaths under 1 yr. per 1,000 live births	67.9	32.2	37.5 (1,234 vs. 32,874)	38.3 (1,260 vs. 32,876)
Deaths under 1 mo. per 1,000 live births	36.7	22.8	25.4 (835 vs. 32,874)	24.3 (799 vs. 32,876)
Per cent of total deaths under 1 yr. occurring in first month	54.0	70.7	67.7 (835 vs. 1,234)	63.4 (799 vs. 1,260)
Per cent of deaths under 1 yr. due to prematurity as sole or primary cause	24.3	34.4	34.1 (421 vs. 1,234)	29.5 (372 vs. 1,260)
Per cent of deaths under 1 mo. due to prematurity as sole or primary cause	43.3	47.7	49.7 (415 vs. 835)	44.9 (359 vs. 799)

According to the National Office of Vital Statistics Facts for 1947, the proportionate relationship between the various causes of infant mortality is similar for the United States and Colorado; whereas for New Mexico the pattern differs considerably. The comparatively low percentage of infant deaths attributed to prematurity in New Mexico doubtless is explainable, in part, by the high over-all infant death rate and the relatively high percentage of the deaths occurring after the first month of life from causes not peculiar to early infancy.

the State Health Department's statistics on infant mortality in Colorado in 1949 which were classified according to the detailed code (4 digit) of the Sixth Revision of the International List of Causes of Death (put into effect in 1949). Nearly two-fifths (39.7 per cent), or 451, of 1,135 deaths under one year of age among residents, exclusive of deaths occurring outside of the state, involved immaturity. Sixteen per cent, or 183, of the deaths were attributed to immaturity without qualifications, and another 268, or 24 per cent, were due to immaturity together with some other condition of early infancy.

Furthermore, the proportionate infant loss known to be related to immaturity probably will assume much greater magnitude as cross-checking of death certificates with corresponding birth certificates for facts on weight proceeds. Thirty-one, or 57 per cent, of the first 54 infants dying in Colorado in 1950 for whom the birth and death information could be correlated had birth weights of less than 5½ pounds. Twenty-five per cent of the death certificates for the 31 underweight infants made no mention of prematurity.

Costs

The premature infant service at the University of Colorado Medical Center was planned to give care especially to babies for whom it might not otherwise be available. The State Health Department pays the Medical Center on a fixed per diem rate equal to about one-half the estimated cost of the care. No charges are made to the families, but those able to do so are permitted to reimburse the State Health Department in whole or in part.

Adequate care for the premature is costly. It has averaged about 16 dollars a day at the Denver center; and the average period of hospitalization has been comparatively long, 24 days, including survivors only, as indicated by a study covering nine months of experience at the center. The possibilities of helping to meet this type of medical expense through voluntary insurance, joint funding, and other shared methods are being explored.

Health Education Services

As in all public health programs, many types of health education have been employed to facilitate the premature infant care activities. Leaflets, articles for the general public, reports in professional journals, mimeographed guides and instructions for physicians and nurses, talks, and conferences have been found effective.

Three examples of useful materials are:

1. A set of simple instructions prepared by Dr. E. Stewart Taylor of the Medical Center for the management of premature labor. These recommendations were mimeographed and distributed to all physicians in the state, because the majority of deaths of prematurely born infants occur on the first day of life and are primarily a problem of delivery procedures rather than of specialized nursery after-care.

2. A two-page guide for public health nurses concerning the home care of premature infants after dismissal from a premature nursery.

3. A popularly written leaflet, with attractive drawings, to inform the general public about the services available at the premature nurseries at the Medical Center and suitable care after the baby returns home.

Benefits to the General Health Program

From the broad view of promoting general public health, the prematurity prevention and care activities in Colorado are proving to be doubly successful. First, the program is demonstrating how a special problem can be met, progressively, through joint planning by health, medical, and community groups and through ramifying pilot services and professional training. Second, but equally important, the coordinated measures against prematurity as a key problem are stimulating organization of local health services and systematic planning of programs for all types of public health protection.

CHANGING CONCEPTS OF THERAPY FOR SEVERE VARICOSE VEINS

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DENVER

Since the time of Hippocrates, varicose veins have been surgically treated. In treatment of severe cases during the 1920s, bold excisions and strippings of varicose veins were carried out. Beecause of prolonged hospitalization, high morbidity and the not inconsiderable mortality resulting from pulmonary embolism, the procedure was largely given up. Then followed a period of therapy in the 1930s and early 1940s with high ligations, with and without retrograde sclerosing solution injections. This was followed by recurrences in a large majority of cases. During the middle 1940s, multiple ligation therapy reached its zenith, though it, too, failed to attain the Utopian ideal in all cases. Intelligent therapy can be carried out only with fundamental understanding of anatomy of venous systems of the lower extremities together with the pathologic physiology of varicose veins.

Venous systems of the lower extremities are three in number—saphenous, communicating, and femoral. The saphenous system is comprised essentially of the long and short saphenous veins. The long saphenous vein travels along the medial aspect of the foot, ankle, leg and thigh to reach the groin, while the small saphenous vein travels along the lateral and posterior aspect of the leg and enters the popliteal vein in about 60 per cent of cases; in 30 per cent it enters the deep circulation elsewhere; and in 10 per cent it joins the long saphenous vein.

The communicating veins join the saphenous venous system to the femoral venous system and are about five in number above the knee, and twenty in number below the knee. Of clinical importance are the constant superficial inferior epigastric vein, the superficial external pudendal vein, the superficial circumflex iliac vein and the less constant lateral and medial femoral cutaneous veins, all of which empty into the large saphenous vein just distal to the sapheno-femoral venous junction.

Undoubtedly heredity is the greatest single etiological factor, complemented by pregnancy and a number of strenuous occupations and systemic conditions. As the result of degenerative processes involving the walls and valves of the superficial or saphenous venous channels of the lower extremities, the valves become incompetent

and dilatation and venostasis result. If unchecked at this stage, chronic eczema, anoxia, migrating superficial thrombophlebitis, fibrosis, chronic lymphedema and ulcer follow.

Current therapy of the most progressive type has crystallized during the past several years and is based on careful examination utilizing Perthes', Trendelenburg and multiple turniquet tests to demonstrate competent valve levels, communicating veins and competent deep or femoral systems.

Treatment aims to obliterate the larger superficial varicose dilatations, sever the communicating veins and sclerose the small venules. The operative procedures employed include:

1. Sapheno-femoral interruption at the level of the fossa ovalis with separate ligations of five corollary branches previously described.

2. Multiple ligations at levels of communicating incompetent veins without injections of sclerosing solutions.

3. Saphenous strippings as indicated. These are most easily accomplished by use of Babcock type of intra-luminary strippers which are passed from below upward, starting at the level of the medial malleolus in case of the greater saphenous and passed to the groin if possible. The lesser saphenous is stripped from the postero-lateral part of the leg to level of popliteal space. Thrombotic, tortuous and adherent veins preclude stripping and excision or forcible evulsion may be necessary. Elastic wrappings of the legs must be carried out postoperatively, both to minimize postoperative hematomata and to limit transitory swelling.

Communicating veins must be sought and ligated, requiring multiple incisions and painstaking dissections. This can be combined with the stripping procedure. It is well to bring under control, prior to surgery, the sequelae of venostasis before proceeding with surgery, although ulceration may require the surgery for repair.

Because of the nature of the condition, new varicosities may be expected. Patients should be so advised and return for small recurrent varicosities which can be easily kept under control with injection.

During the past fourteen months, 35 private cases classed as severe, on the basis of evidence of sequelae of venostasis, have been treated. The age range was 17 to 72. Twenty-four cases had had previous treatment elsewhere. There were 25 female and 10 male; 22 bilateral and 13 unilateral cases. Nine cases required high saphenous ligations only; 4 cases low saphenous ligations; 24 cases had multitple ligations combined with high saphenous ligations; 12 cases had demonstrable communicating veins requiring dissection and ligations; 5 cases required skin grafting; 20 cases received postoperative injections; 5 long saphenous strippings and one short saphenous stripping were done. There were two anaphylactic reactions to Sylnasol injections, both with recovery.

The Book Corner

Book Reviews

Proceedings of the First Clinical Acth Conference: By John R. Mote, M.D., Editor. The Blakiston Company, Philadelphia, Toronto, 1950. Price, $5.50.

This volume is a collection of early observations by fifty-two groups of investigators of the effects of administration of the adrenocorticotrophic hormone (ACTH, Armour) to humans. Some of these concern changes in metabolism of various substances by the intact human being. Most deal with the use of ACTH in various disease states and include short clinical evaluation with the metabolic balance studies.

The essays are short, generally well illustrated with charts and none presumes to tell the whole story. Each is followed by a summary and many have discussions appended.

Steroids of the "11-17 oxy" type derived from the adrenal cortex have been shown to produce a marked reduction in the number of circulating eosinophils. Administration of ACTH or of epinephrine to a person produces eosimopenia indirectly by causing release of the "11-17 oxy steroids" from the individual's own adrenals. This is the basis of a test for determining the presence of normal pituitary-adrenal cortical reserve.

This book is a wide preliminary survey of the actions of ACTH. More study is needed obviously before the physician can employ this potent substance intelligently.

S. M. PRATHER ASHE, M.D.

Penicillin, Its Practical Application: Under the General Editorship of Professor Sir Alexander Fleming, M.B., B.S., F.R.C.P., F.R.C.S., F.R.S., Professor Emeritus of Bacteriology, University of London; Principal, Wright-Fleming Institute of Microbiology, St. Mary's Hospital Medical School, London. Second edition. Butterworth & Co. (Publishers), Ltd., London, England. The C. V. Mosby Company, St. Louis, Mo., U.S.A., 1950. Price, $7.00.

No greater person than the discoverer of penicillin could be more qualified to present and

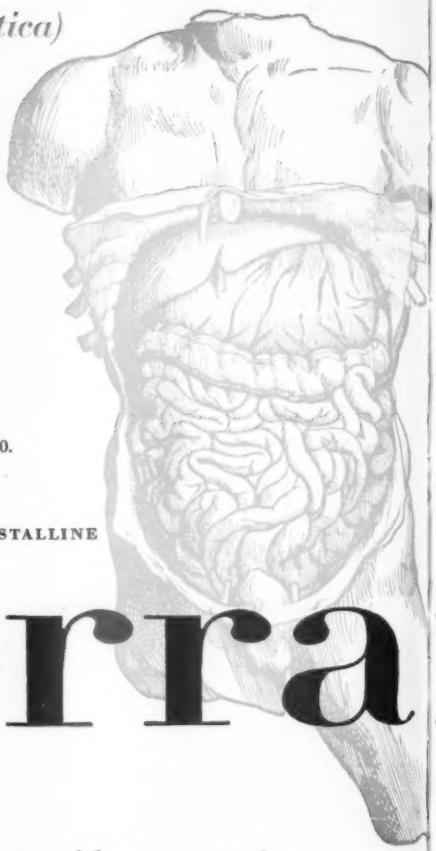
(Continued on Page 44)

POSITIVE CLINICAL FINDINGS IN CERTAINFEC

In Amebiasis (E. histolytica)

"In daily doses of 1.0 and 2.0 grams by mouth for ten days, terramycin therapy resulted in the disappearance of E. histolytica from the stools of all but one of 22 patients. Parasitic relapse occurred in this individual on the eleventh day after treatment, whereas in the remaining 21 subjects, the stools have remained negative to date."

Most, H., and Van Assendelft, F.:
Ann. New York Acad. Sc. 53:427 (Sept. 15) 1950.



CRYSTALLINE

Terra

Clinical findings covering a wide range of bacterial and rickettsial as well as several protozoan infections indicate that:

1. *Terramycin may be highly effective even when other antibiotics fail.*
2. *Terramycin may be well tolerated even when other antibiotics are not.*

In Dysentery
due to Shigella paradysenteriae

Six cases, Terramycin treated—

"The diarrhea, which was pronounced in each case, stopped within 48 hours in the case of four patients and within 72 hours in the other two. . . . In all cases, the organism disappeared from the stool after treatment was started and did not reappear."

Dowling, H. F.; Lepper, M. H.; Caldwell, E. R., and Spies, H. W.: Ann. New York Acad. Sc. *63*:433 (Sept. 15) 1950.

mycin

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ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

Dosage: On the basis of findings obtained in over 150 leading medical research centers, 2 Gm. daily by mouth in divided doses q. 6 h. is suggested for most acute infections.

Supplied: 250 mg. capsules, bottles of 16 and 100;
100 mg. capsules, bottles of 25 and 100;
50 mg. capsules, bottles of 25 and 100.

Pfizer

Antibiotic Division

CHAS. PFIZER & CO., INC., *Brooklyn 6, N.Y.*

Case Reports

BUBONIC SEPTICEMIC AND PNEUMONIC PLAGUE*

H. C. ROSENSTIEL, M.D., and
J. R. BATEMAN, M.D.
ALBUQUERQUE, NEW MEXICO

Four cases of plague infection have been diagnosed in New Mexico within the six months preceding March, 1950. This is a report of the latest case, which was treated at the Veterans Administration Hospital in Albuquerque. In this report, only the history, clinical manifestations, and course will be related in order to familiarize physicians in this state and surrounding area with a typical case of the disease. A later report in conjunction with the United States Public Health Service Western Communicable Disease Center Laboratory and the New Mexico Department of Public Health will combine all four cases with a complete discussion of their bacteriology, immunology, and epidemiology. These two agencies were of inestimable help in the diagnosis of the following case.

CASE REPORT

J. A., white male, aged 27, was admitted to the Albuquerque Veterans Administration Hospital on January 13, 1950. His complaints were of fever, swelling in the left axilla and over the left chest below the left axilla, slight productive cough, generalized malaise, and redness with burning of the eyes. About mid-afternoon of January 8, 1950, without any premonitory symptoms, the patient developed a sense of fever and malaise. This continued, and about eighteen hours later he noted pain and swelling in the left axilla and the adjacent chest wall. He consulted his local physician who began treatment with intramuscular penicillin. That day he also noted that his eyes were bloodshot with a sense of burning, but without discharge or photophobia. Following this he noted a slight cough productive of white sputum. There was no pleuritic pain. He received intramuscular penicillin daily until his hospital admission. His family reported that he had a very high fever and was rather confused during this time. Shortly after his admission, the sputum became sanguinous.

The recent past history revealed that the patient had hunted, killed and dressed five cottontail rabbits on January 6, 1950. He could recall no sores on the skins of the animals, nor did he notice any abnormalities of their internal organs. He did not know of any injury to his hands during the dressing process. The rabbits had been eaten by himself, his wife and two others, but it was stated that they were well-cooked and the other individuals did not develop symptoms of the disease. He said that Maljamar, New Mexico, where he lived was over-run by rats, and that he had noticed many of these rodents about the premises of his home.

The remote past history revealed that the patient had been overseas in the Southwest Pacific area. In July, 1945, he noticed a deep aching pain in the right leg associated with a massive hard swelling, without discoloration, from the knee to the toes. The inguinal and femoral nodes were enlarged. The swelling had subsided in three weeks. Since that time, long periods of standing would cause some swelling of both legs. He was hospitalized in the Albuquerque Veterans Administration Hospital for two weeks in 1948 because of a recurrence of this complaint. The diagnosis at that time was trichopytosis, right foot, with cellulitis and lymphangitis.

Physical examination on admission revealed an acutely ill, febrile, dehydrated, well-developed, well-nourished, mentally alert white male. Height was 73 inches and weight 162 pounds. Temperature was 104° F. rectally. Externally the scalp and neck were normal. There was no nuchal rigidity. The thyroid was not enlarged. There were a few slightly enlarged submaxillary and posterior cervical lymph nodes which were non-tender. The tympanic membranes were both normal. The conjunctivae were diffusely and markedly injected, but there was no discharge from the conjunctival sacs. The ocular movements were normal, and the pupils reacted normally to light and convergence. The nasal mucosa was reddened, and the turbinates were swollen. The lips were dry and cracked, and there was a single large herpetic lesion on the right lower lip. The buccal mucosa was dry, and the tongue was fissured and coated. The pharyngeal mucosa was diffusely reddened. The teeth revealed numerous sordes. The chest revealed equal expansion bilaterally. The left anterior and upper lateral chest wall and the left axilla were swollen, warm, red, and tender. There was extensive pitting edema over the left chest wall, greatest at the posterior axillary line. the respirations were rapid and deep. There was slight dullness to percussion over the right lung base in the mid-axillary line. There was suppression of the breath sounds and voice sounds, with crepitant rales, ronchi, the post-tussive rales, audible in this area. Percussion revealed the heart to be of normal size and shape. Auscultation disclosed regular rhythm with systolic gallop. The heart tones were loud and clear and there were no murmurs. The peripheral arteries of the arms, feet, and legs were normal. The blood pressure was 170/70 and the pulse was 100 beats per minute. The abdomen and genitalia were normal; there were no herniae; rectum and prostate were normal; the back and extremities were normal; complete neurologic examination was normal. There was slight erythema of the skin of the left chest, with numerous dilated peripheral blood vessels visible; there was a small "spider" nevus on the top of left shoulder. There was a large, firm, tender, non-fluctuant lymph node high and anterior in left axilla and several firm, non-tender lymph nodes palpable in both inguinal areas.

An x-ray of the chest revealed scattered areas

*From the Medical Service, U.S.V.A. Hospital, Albuquerque, New Mexico. Sponsored by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are a result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

of increased density in both bases which were interpreted as bronchopneumonia. The white blood cell count was 40,050 per cubic mm. with 73 per cent segmented polymorphonuclear leucocytes, 14 per cent band forms, 11 per cent lymphocytes and 2 per cent eosinophils. The hemoglobin was 13.5 grams per cent, and the red blood cell count was 4,990,000 per cubic mm. The sedimentation rate was 77 mm. per hour. The urinalysis revealed a trace of albumin and no sugar; microscopic examination of the sediment revealed an occasional red blood cell and 2 to 3 white blood cells per high power field. Shortly after admission, blood, sputum, and material aspirated from the axillary bubo with normal saline washing were sent to the laboratory for culture and for mouse and guinea pig inoculation.

Therapy with Aureomycin 500 mg. orally every six hours was then begun. We suspected tularemia or plague in this case, and aureomycin had been effective in previous cases having these diagnoses. In addition to this, intravenous fluids with added vitamin B complex and vitamin C were administered for several days to combat dehydration. Because there had been no appreciable objective change in the patient's condition after twenty-four hours, although subjectively he noted improvement, therapy with Dihydrostreptomycin 0.5 gm. intramuscularly every six hours, and Sulfamerazine 0.5 gm. with Sulfadiazine 0.5 gm. orally every four hours was begun. At this time the dose of Aureomycin was increased to 500 mg. every four hours. The patient began to take some food and fluids on this day. The temperature remained very close to 104° F. rectally until January 16, 1950. On January 15 a dull red morbilliform eruption was noted on the trunk. The temperature was 102.2° F. rectally on January 17. The patient felt better and his appetite was improving. The eruption was now completely generalized. The following day the temperature had fallen to 101.4° F. rectally. The generalized eruption was beginning to fade. The bubo had shown no change, and the edema of the chest wall was unchanged. The spleen-tip was now palpable. The next day, January 19, the temperature was 99.8° F. rectally. The eruption had almost disappeared. The appetite was very good. On this date the first laboratory reports were received. A gram-negative, heavy, pleomorphic, bipolar staining rod had been cultured from the patient's blood. The material which had been aspired from the bubo had been injected into a mouse which died the following day. Culture of the mouse tissue had yielded the same type of organism. Neither of these organisms had been agglutinated by the patient's serum or by known tularemia serum from a recently diagnosed case. Later this day the patient called attention to some painful, raised, pink areas on the anterior surface of the tongue. The following day the temperature was 100° F. rectally, but he felt much improved, and his appetite was enormous. The lesions on the tongue were still quite painful, but looked improved. The skin eruption was entirely cleared, and the systolic gallop rhythm was no longer evident. Aereation of the right lung was considered to be good. From that time the condition rapidly improved objectively and subjectively. The temperature ranged between 99° and 99.6° F. rectally. Prior to this time the patient had been somewhat confused mentally, especially at night, but subsequently this was not noted. On January 26 the lesions on the tongue had completely cleared, although the herpetic lesion on the lip was still crusted. A chest x-ray on this date revealed complete clearing of the previously described infiltration. The bubo was found to be much softer and, before aspiration could be repeated, it ruptured spontaneously and drained a large quantity of sanguino-purulent material. The Sulfadiazine and Sulfamerazine were discontinued. The laboratory reported on this date their ability to make a definite diagnosis of plague. The organism which had been isolated satisfied the various sugar culture requirements, multiple animal transfer had proved consistent, and the organisms were agglutinated significantly by sera from known plague cases. By January 29 the bubo had completely healed and was no longer tender. The patient could be weighed and it was discovered that he had lost 25 pounds. Aureomycin therapy was discontinued on February 2, after a total dose of 62 grams, and Streptomycin therapy was discontinued on February 4, after a total dose of 25 grams had been given. The patient was quite weak when first allowed to get out of bed, but rapidly regained his strength.

In addition to the laboratory studies given above, numerous other procedures were performed. Agglutination tests for E. Typhosa, S. Paratyphi, Brucella Melitensis, Tularemia, Proteus OX-19, OxK and Ox2 were performed on seven occasions, the last being on February 27, all with negative results. Hepterophile antibody agglutinations were negative on several occasions. The Kahn test was negative. The white blood cell counts gradually returned to normal levels, and a mild secondary anemia developed, for which ferrous sulfate, 1 gram daily in divided doses, was administered. The last hemogram on February 27 revealed a hemoglobin of 11.5 grams per cent, a red blood cell count of 3,900,000 per cubic mm., a white blood cell count of 9,950 per cubic mm. with 46 per cent segmented polymorphonuclear leucocytes, 5 per cent band forms, 47 per cent lymphocytes, 1 per cent monocytes, and 2 per cent eosinophils, a hematocrit of 33 per cent red blood cells, and a sedimentation rate of 50 mm. per hour. On February 27 the patient weighed 160 pounds, and admitted only to slight weakness. Physical examination at this time revealed entirely normal findings except for some slight residual induration at the site of the bubo. The heart rate was 120 per minute, and the blood pressure was 118/90 in the left arm. A chest x-ray at this time was negative and an electrocardiogram revealed sinus tachycardia and left axis deviation.

Summary

A case of buponic, septicemic and pneumonic plague has been described in some detail. Although the patient was seriously ill, he responded favorably to therapy with a combination of antibiotics. Craig[1] and Dieuade[2] state that such cases usually terminate fatally in from three to four days. It was five days before this patient received Aureomycin, and six days before he received Dihydrostreptomycin and Sulfadiazine-Sulfamerazine therapy.

Recognition of this disease requires a constant awareness of the possibility of its occurrence, especially in the southwestern part of the United States. Because of its extreme similarity to tularemia, the absolute diagnosis can be made only after extensive bacteriologic and immunologic studies*. This case would indicate that the disease can be obtained by contact with infected rabbits. No conclusion as to one recommended form of therapy can be drawn from this case, but if confronted by another similar case the authors would use Aureomycin, Dihydrostreptomycin, and the sulfonamides in full therapeutic doses.

REFERENCES

[1]Craig, Charles F.: Practice of Medicine, Tice, W. F. Prior Co., Hagerstown, Md. Volume IV. Page 109.

[2]Dieuade, Francis R.: Plague, Textbook of Medicine Cecil, 7th Edition; W. B. Saunders Co., Phila., Pa. Page 251.

*Acknowledgement: The laboratory procedures which lead to the identification of this microorganism were performed by Miss M. Greenfield in the State of New Mexico Department of Public Health Laboratory at Albuquerque.

Book Reviews

(Continued From Page 39)

edit an overall outline of the potentialities and uses of the drug. Sir Alexander Fleming in his revised and rewrtiten edition (63 illustrations and 491 pages) has added chapters on toxic manifestations of penicillin and its use in acute infectious diseases. Practical clinical application in infectious disease is excellently presented by numerous eminent British and American authors. Short chapters on Streptomycin, Aureomycin and Chloromycetin, though the discussion is not exhaustive, increase the scope of this volume.

As a discourse on penicillin it is unexcelled, but physicians must be aware that the value of this drug may be surpassed in the future by newer and more efficient antibiotics. For the present, this volume provides a useful general guide to the student, intern, resident and practitioner.

MacDONALD WOOD, M.D.

Intestinal Intubation: By Meyer O. Cantor, M.S., M.D., F.A.C.S., Assistant Attending Surgeon, Grace Hospital; formerly, Senior Attending Physician, Deaconess Hospital, Detroit, Michigan. Charles C. Thomas, Publisher, Springfield, Illinois. Price, $7.50.

This book is a comprehensive study supported by original work done on the effect of the various gases upon balloons of intestinal tubes as well as the effect and treatment of balloons lost in the gastro-intestinal tract.

To the casual reviewer, the author of a text apportioned into eighteen chapters would appear guilty of verbosity and would at the same time lose the effectiveness of his intentions. This is not the case, however, as it appears to this reviewer. Quite appropriately the author presents a concise and complete historic background on the evolution with respect to the various inventions and developments of the gastro-intestinal tubes.

Because intestinal decompression is in itself a life saving measure, the obvious intent of this book is to stress the idea that intestinal intubation has become the sheath anchor in the armamentarium of the surgeon in his attack upon intestinal distention.

There are many illustrations of the various intestinal tubes and concrete roentgenographic pictures of these tubes visualized in the intestinal tract.

The one chapter that is particularly instructive is the one the author reviews, the normal anatomy of the gastro-intestinal tract from "os orum to os' anum" as related to intubation. Emphasis is laid upon many anatomical traps and pitfalls that may halt the downward passage of the long intestinal decompression tubes.

The clinical application of these anatomical observations, be they normal or anamalous, can be noted in the oro-naso-pharynx as an obstruction; in the stomach, such as a J-type or "steerhorn" type of stomach. But the most common site for the stoppage of the downward progress of the tube is at the duodeno-jejunal juncture, for the following reason. The ligament of Treitz has been shown to constitute a considerable barrier to intubation. A short ligament of Treitz in certain types of individuals may result in a rather marked angulation at the duodeno-jejunal flexure thus halting the normal downward progress of the tube.

The author discusses the intestinal physiology, intubation in lesions of the colon, the intestinal tract of children and the responsibility of the surgeon in the use of intestinal intubation.

This book is highly recommended particularly to surgical residents because they are usually the first to be called on when an intestinal decompression becomes an emergency. Surgeons generally may find this book equally beneficial.

GERALD H. FRIEDMAN, M.D.

Sexual Deviations: By Louis S. London, M.D., Diplomate, American Board of Psychiatry and Neurology; Member, American Psychiatric Association; Fellow of the American Medical Association and other medical societies; and Frank S. Caprio, M.D., Member, American Psychiatric Association; Society for the Advancement of Psychopherapy; American Medical Association and other medical societies; with a foreword by Nolan D. C. Lewis, M.D., Professor of Psychiatry, College of Physicians and Surgeons, Columbia University; Director, New York State Psychiatric Institute and Hospital; Editor, The Psychoanalytic Review. Published by The Linacre Press, Inc., Washington 6, D. C. Price, $10.00.

This interesting and well written book takes up the problems relating to sexual deviations in a manner which enables the average person to understand something of the etiology and development of the pathological process.

The material consists mainly of case histories, given in sufficient detail, usually in the words of the patient, to make the reader feel that he understands the problem.

There is an excellent glossary of terms relating to sexual deviations, and the discussions of the various situations which are pictured are concise and to the point.

If this excellent treatise has a deficiency, it is one of incompleteness, in that therapy and the results of therapy, receive scant attention. It is to be hoped that these authors will be encouraged to prepare a companion volume, which will deal with the social aspects of sexual deviations, in a more comprehensive manner.

SAM W. DOWNING, M.D.

(Continued on Page 62)

"... it was discovered that Dramamine ... is a powerful preventive of motion sickness."

—Editorial: Dramamine,
GP 2:27 (July) 1950

DRAMAMINE® BRAND OF DIMENHYDRINATE

—for the prevention and/or treatment of motion sickness

For the dizziness, nausea or vomiting caused by motion, Dramamine has given unusually satisfactory results, prophylactically and therapeutically. Supplied in 50 mg. tablets and in liquid form. G. D. Searle & Co., Chicago 80, Illinois.

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COLORADO
State Medical Society

PRELIMINARY PROGRAM

SIXTEENTH ANNUAL MIDWINTER POSTGRADUATE CLINICS OF THE COLORADO STATE MEDICAL SOCIETY

February 20, 21, 22, 23, 1951

All Round Table Discussions, Afternoon Meetings, Exhibits and the Dinner-Dance will be held at the Shirley-Savoy Hotel. The Morning Clinics will be held Wednesday, February 21 at Children's Hospital; Thursday, February 22, at Presbyterian Hospital; and Friday, February 23, at Colorado General Hospital.

TUESDAY, FEBRUARY 20, 1951

ALL DAY

Advance Registrations and Installation of Exhibits at Hotel.

EVENING

8:30—Entertainment and Stag Smoker, refreshments—Colorado and Centennial Rooms, Shirley-Savoy Hotel. (Registration for the Midwinter Clinics is a prerequisite for attendance at the Smoker).

WEDNESDAY, FEBRUARY 21, 1951

MORNING

Children's Hospital

Harry C. Hughes, M.D., Denver, President, Children's Hospital Staff, Presiding

8:30—Registration opens at both hotel and hospital.

9:30—Pediatric Clinics. Cases presented by staff of Children's Hospital. Discussion by Charles A. Janeway, M.D., Boston, Mass. (Guest Pediatrician), and John R. Schenken, M.D., Omaha, Nebr. (Guest Pathologist).

11:00—Clinic on Anesthesia Problems in Surgery. Cases presented by staff of Children's Hospital. Discussion by Rolland J. Whiteacre, M.D., Cleveland, Ohio (Guest Anaesthesiologist), and John R. Schenken, M.D., Omaha, Nebr. (Guest Pathologist).

12:00—Adjourn.

NOON

12:00—All exhibits open.

12:30—Luncheon and Round Table Discussion at the Shirley-Savoy Hotel. Albert Bowen, M.D., Boulder, President, Boulder County Medical Society, presiding. Question and answer period conducted by Charles A. Janeway, M.D., John R. Schenken, M.D., and Rolland J. Whiteacre, M.D. (Guests).

AFTERNOON

Lincoln Room of the Shirley-Savoy Hotel

Paul A. Draper, M.D., Colorado Springs, President, El Paso County Medical Society, Presiding

Charles A. Janeway, M.D., John R. Schenken, M.D., Rolland J. Whiteacre, M.D., Edward J. McCormick, M.D., and Charles H. Burnett, M.D., will each give papers in their specialties during the afternoon. There will also be ample opportunity to visit the exhibits.

EVENING

(Open Date)

Nebraska Medical School Graduates Reunion Banquet.

THURSDAY, FEBRUARY 22, 1951

MORNING

Presbyterian Hospital

George H. Lord, M.D., Aurora, President, Presbyterian Hospital Staff, Presiding

8:30—Registration opens at both hospital and hotel.

9:30—Surgical Clinics—Cases presented by Staff of Presbyterian Hospital. Discussion by Edward J. McCormick, M.D., Toledo, Ohio (Guest Surgeon).

11:00—Medical Clinics—Cases presented by Staff of Presbyterian Hospital. Discussion by Charles H. Burnett, M.D., Dallas, Texas (Guest Internist).

12:00—Adjourn.

NOON

12:00—All exhibits open.

12:30—Luncheon and Round Table Discussion at the Shirley-Savoy Hotel. Clarence Sabin, M.D., Windsor, President, Weld County Medical Society, Presiding. Question and answer period conducted by Edward J. McCormick, M.D., and Charles H. Burnett, M.D.

AFTERNOON

Lincoln Room of the Shirley-Savoy Hotel

Edgar Durbin, M.D., Denver, President, Denver County Medical Society, Presiding

John R. Schenken, M.D., Charles A. Janeway, M.D., Reed M. Nesbit, M.D., and Bentley P. Colcock, M.D., will each give papers in their specialties during this afternoon. Glen W. Koford, M.D., Cheyenne, will show movies on the Management of the Persistent Occiput-Posterior Delivery With Kielland Forceps.

EVENING

7:00—Annual Subscription Dinner-Dance, Lincoln Room, Shirley-Savoy Hotel. Sponsored by the Woman's Auxiliary to the Colorado State Medical Society.

FRIDAY, FEBRUARY 23, 1951

MORNING

Colorado General Hospital

Ward Darley, M.D., Denver, Dean, Department of Medicine, Colorado General Hospital, Presiding

8:30—Registration opens at both hotel and hospital.

9:00—Medical Clinics—Cases presented by Staff of Colorado General Hospital. Discussion by Charles H. Burnett, M.D., Dallas, Texas (Guest Internist).

10:00—Urological Clinics—Cases presented by Staff of Colorado General Hospital. Discussion by Reed M. Nesbit, M.D., Ann Arbor (Guest Urologist).

11:00—Surgical Clinic. Cases presented by Staff of Colorado General Hospital. Discussion by Bentley P. Colcock, M.D., Boston (Guest Surgeon).

12:00—Adjourn.

NOON

12:00—All exhibits open.

12:30—Luncheon and Round Table Discussion at Shirley-Savoy Hotel. Jacob O. Mall, M.D., Estes Park, President, Larimer County Medical Society, Presiding. Question and answer period conducted by Charles H. Burnett, M.D., Reed M. Nesbit, M.D., and Bentley P. Colcock, M.D.

AFTERNOON

Lincoln Room of the Shirley-Savoy Hotel

Dwight B. Shaw, M.D., Pueblo, President, Pueblo County Medical Society, Presiding

Bentley P. Colcock, M.D., Charles H. Burnett, M.D., Reed M. Nesbit, M.D., Edward J. McCormick, M.D., and Rolland J. Whiteacre, M.D., will each give papers in their specialties during this afternoon. There will also be ample opportunity to visit the exhibits.

Auxiliary

The Woman's Auxiliary to the Colorado State Medical Society will hold its annual Mid-year Meeting in Denver February 22. Mrs. Harry Gauss, the State President, will preside over the session.

Following is the program for the session.

9:00 A.M.—Registration.

9:30-11:00 A.M.—Mid-year Board Meeting.

11:00-12:00 P.M.—Brunch (All Auxiliary members welcome). Guests: President, State Medical Society, Dr. Ervin A. Hinds. Advisory Council, Drs. Irvin E. Hendryson, Wiley Jones, McKinnie Phelps.

12:30-1:00 P.M.—Panel—Organization. Mrs. R. F. Courtney, Chairman, Moderator. Panel members: Mrs. J. B. Milton, M.A.L., Trinidad; Mrs. James Espey, President, Northwest; Mrs. T. M. Rogers, President, Northeast; Mrs. R. S. Johnston, President, Otero.

1:00-1:30 P.M.—Panel—Program. Mrs. J. S. Haley, Chairman, Moderator. Panel members: Mrs. R. Davis, President, El Paso; Mrs. Frank B. Olsen, President, Mesa; Mrs. Paul Walter, President, San Luis; Mrs. R. B. Richards, President, Morgan.

1:30-2:00 P.M.—Panel—Today's Health. Mrs. L. Clark Hepp, Chairman, Moderator. Panel members: Mrs. E. J. Meister, President, Denver; Mrs. J. O. Clanin, President, Eastern; Mrs. Harry D. Jones, President, Boulder; Mrs. J. W. Clark, President, San Juan.

2:00-2:30 P.M.—Panel—Public Relations. Mrs. John B. Grow, Chairman, Moderator. Panel members: Mrs. F. D. Kuykendall, Nurse Recruitment, Chairman; Mrs. Lorenz S. Frank, Health Education Chairman; Mrs. Grant R. Curless, President, Pueblo.

2:30-3:00 P.M.—Panel—Legislation. Mrs. McKennie L. Phelps, Chairman, Moderator. Panel members: Mrs. William O. Good, President, Montrose; Mrs. A. E. Dahl, President, Arapahoe; Mrs. R. T. Porter, President, Weld; Mrs. Robert Morrell, President, Larimer.

3:00-3:15 P.M.—Comments. Mrs. John Bouslog, Director, Woman's Auxiliary to the A.M.A.; Mrs. T. E. Heinz, Chairman, Public Relations, Woman's Auxiliary to the A.M.A.

7:00—Dinner-Dance, Shirley-Savoy Hotel. Colorado State Medical Society and Auxiliary.

Mrs. Harry Baum and committee in charge of conference arrangements.

Mrs. Russell J. Evans, Press and Publicity, 3303 East Evans Ave., RAce 1797.

COLORADO
Medical School Notes

A young Denver-born surgeon has been appointed Associate Professor of Surgery in Colorado University's School of Medicine and Associate Chief of the Division of Surgery at Denver General Hospital. The appointment of Dr. David H. Watkins to the position has been announced by Dr. Robert C. Lewis, Dean of the School of Medicine. The appointment is effective January 1, 1951.

Appointment of Dr. John Rusweiler Cann as Assistant Professor of Biophysics in Colorado University's Department of Medicine was announced by Dr. Robert C. Lewis, Dean of the School of Medicine. Dr. Cann's appointment is effective January 1, 1951. He will serve under Dr. Theodore T. Puck, Professor and Head of the Department of Biophysics.

INSTITUTE ON NEWBORN AND PREMATURE INFANT CARE

Sponsored by the University of Colorado School of Medicine and the Colorado State Department of Public Health

February 5, 6, 7 and 8, 1951

This Institute is planned for teams of physicians and public health workers who may be interested in developing programs to improve the care of premature infants in their own communities.

Subjects to be covered include: Factors Contributing to Prematurity and Abortion, Prenatal Care, Iso-Immunization, Respiration of the Newborn, Growth and Development of Premature Infants, Nutritional Requirements and Feeding of Prematures Including Formula Preparation, Prevention and Treatment of Infections, Psychological Problems of Premature Births, Utilization of Community Resources, Nursing Care of Newborn and Premature Infants and an Obstetric-Pediatric Mortality Conference.

Guest speakers are: Willard M. Allen, M.D., Professor of Obstetrics and Gynecology, Washington University, St. Louis, Missouri; Frederick M. Kriete, M.D., Chief, Bureau of Maternal and Child Health, California State Health Department; Arthur J. Lesser, M.D., Director, Program Planning Section, Health Services Division, U. S. Children's Bureau; and Myron E. Wegman, M.D.,

Professor of Pediatrics, Louisiana State University.

The rest of the faculty will be selected from the University of Colorado School of Medicine, the Regional Office of the U. S. Children's Bureau, the City and County of Denver Health Department and the Colorado State Department of Public Health.

Presentations will be planned so that physicians, hospital administrators, nurses and public health workers may benefit from the program. In several sessions the audience will take an active part in the discussion.

The registration fee is $10.00, but there will be no tuition charge. All applications should be sent to the Director of Graduate and Postgraduate Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver 7, Colo.

REFRESHER COURSE IN OBSTETRICS AND GYNECOLOGY

During the year 1951 there will be open to licensed physicians, four one-week refresher courses in Obstetrics and Gynecology.

Two applicants will be accepted for each one-week period. Emphasis will be placed on prenatal care, complications of pregnancy and obstretical anesthesia and analgesia (including caudal and saddle block anesthesia). Participants will be able to devote their time to those phases of obstetrics and gynecology in which they are primarily interested in gaining instruction.

The first course will be offered from January 22 to January 28, 1951, inclusive. Preference will be given to the first applications received. Notification of future course dates will be made through the Rocky Mountain Medical Journal.

The course is open to all physicians who are graduates of accredited medical schools and/or members of their respective county medical societies. There is no registration fee. The tuition fee is $35.00.

All applications should be sent to the Director of Graduate and Postgraduate Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver 7, Colorado.

Two prominent Coloradans will play important roles in the forthcoming nationwide Conference on Chronic Disease to be held March 12-14 in Chicago, Illinois.

Dr. Ward Darley, Vice President of the University of Colorado at the Medical Center, and Mark H. Harrington, Denver attorney who is president of the Colorado Health Council, both are members of the Commission on Chronic Illness, which is planning the conference.

In addition to his position on the commission, Dr. Darley is a member of the Conference Committee and will be Chairman of the Conference Committee on Education of Physicians and Dentists.

The conference has been called to explore ways of attacking chronic disease—the nation's No. 1 health problem—through its prevention. It will be attended by leading physicians, civic, industrial and labor leaders from all over the country.

Authoritative summaries will be presented on the prevention and early detection of major chronic diseases, including cancer, heart disease, arthritis, rheumatism, poliomyelitis, multiple sclerosis, cerebral palsy, epilepsy, diabetes, blindness, deafness, tuberculosis and syphilis.

A research grant of $12,425 for the study of the effect of diabetes mellitus on the processes of reproduction has been awarded Dr. Bernard Longwell, Professor in the Department of Biochemistry at the University of Colorado School of Medicine. The grant was given by the U. S. Public Health Service for a period of research from February, 1951, to February, 1952.

Doctors know that experimental diabetes interferes with the normal processes of reproduction. For instance, the disease decreases the ease with which a diabetic sufferer becomes pregnant and lowers the chances of a successful development and delivery of the young. The study, supported by the grant, is a continuation of one now in progress. Its research work will be directed toward studying the changes in body processes which are caused by diabetes and which are responsible for the difficulties in reproduction.

NEW MEXICO Medical Society

NEW MEXICO CLINICAL SOCIETY MEETING NOTICE

Friday, December 15, 1950—8:00 p.m.
Veterans Hospital, Albuquerque, N. M.

Subject: "Management of Acute Infections With Antibiotic and Other Supplementary Aids, Including Cortisone."

The speaker was Dr. Theodore E. Woodward, Associate Professor of Medicine, University of Maryland, School of Medicine, Baltimore, Maryland.

STUART W. ADLER, M.D.,
Executive Secretary,
817 E. Central Ave.,
Albuquerque, N. M.

N. B.: There has been a decided falling off in attendance at meetings of the New Mexico Clinical Society to a point which is making it very embarrassing to ask prominent speakers to come to our state (some of them from a great distance) and address a mere handful of physicians.

The officers of the New Mexico Clinical Society respectfully request your suggestions for improving the attendance at our meetings. Constructive criticism will be the basis for selection of speakers in the future. Unless improvement takes place it certainly is not going to be possible to attract outstanding speakers.

If for no other reason than to support the program of the Clinical Society and to insure our guest speakers an adequate audience, may we urge you to try to be present at subsequent meetings.

Obituary

C. H. DOUTHIRT

Dr. C. H. Douthirt, Santa Fe, died December 1, 1950, at the age of 64. Dr. Douthirt had been an official of the State Health Department since 1933, and at the time of his death he was a Director of the Division of County Health Administration.

Before joining the State Health Department, he was health officer in Union County from 1921.

A native of North Carolina, Dr. Douthirt was

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*Pitt, C.K.: *The Art and Science of Artificial Infant Feeding, J.M. Asso. Ala. 19:101 (Oct.) 1949.*

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graduated from the University of Maryland in 1914.

Dr. Douthirt was a member of the New Mexico Medical Society and the American Medical Association.

UTAH
State Medical Association

THIRD WESTERN INSTITUTE ON EPILEPSY

The Third Western Institute on Epilepsy will be held in Salt Lake City, Utah, the week-end of June 15 to 17, 1951. This meeting will be of wide interest to physicians, social workers, public health nurses, employers, teachers, rehabilitation workers, state hospital personnel, educational leaders, etc. A small registration fee will be required.

Further information may be obtained by writing to Dr. Harriot Hunter, University of Colorado Medical Center, 4200 East 9th Avenue, Denver, Colorado, or Dr. Jean P. Davis, University of Utah, College of Medicine, Salt Lake City, Utah.

FOURTH UTAH CANCER SYMPOSIUM

On March 1 and 2, 1951, the "Fourth Utah Cancer Symposium" will be presented by the University of Utah Medical School, in conjunction with the Utah Chapter of the American Cancer Society, the Utah State Department of Health, and the Utah State Medical Association. The scientific sessions will be held in the Amphitheater of the new Nurses Home of the Holy Cross Hospital, Salt Lake City, Utah.

The aim of the program is to present information of value to the practicing physicians. This information will be presented in the form of clinics, seminars, talks, conferences, teaching movies, and round table discussions. Dr. Louis A. Buie, from Rochester, Minnesota, will discuss diagnosis and therapy of rectal lesions. Dr. Charles Huggins, from Chicago, will present the problem of prostatic cancer as it presents itself to the general practitioner; he also will conduct a seminar on cancer tests. Dr. Ralph Bowers, from Memphis, will discuss gastric cancer, and an "unknown case" at a clinical pathological conference, together with Dr. Lauren V. Ackerman, author of the well known textbook on cancer. Dr. L. Henry Garland, from San Francisco, will present the radiologist's aspect of gastric cancer, and conduct a seminar on unusual x-ray films. Dr. Allen Barnes, from Columbus, Ohio, will discuss the position of the general practitioner in the fight against early cervical cancer, and conduct a conference on recent advances in late cancer therapy. Of special interest will be two round table discussions, one on early cancer diagnosis, and another on late cancer therapy. The moderators in these discussions will be Dean John Z. Bowers, and Dr. Maxwell M. Wintrobe; the discussers will be the guest speakers.

Special preparations are being made to entertain the physicians' wives, who are cordially invited to attend. It is planned to have a fashion show, a cocktail party ,banquet and other entertainment. The meeting is expected to be a memorable event both for the physicians and for their wives.

Auxiliary

REPORT OF AUXILIARY TO THE UTAH STATE MEDICAL ASSOCIATION

Utah was represented at the Seventh Annual Conference, held in Chicago November 2-3, by Mrs. Orin A. Ogilvie, State Auxiliary President, and Mrs. John Z. Brown, Sr., Fourth Vice President of the National. The theme of this conference was "Public Service Through Health Education." Mrs. Ogilvie gave her brief report of the work in Utah, which included the wonderful work of all Auxiliaries in the state before the election this fall. She also told of the formation of study groups and schools of instruction for doctors' wives, now being organized in this state.

Reports of the activities of the various Auxiliaries in the State of Utah were given at the meeting of the Board of the Utah State Medical Auxiliary held in the state medical offices in Salt Lake City on November 13, with Mrs. Ogilvie presiding. Mrs. Rulon F. Howe of Weber County told of the marvelous pre-election campaign carried on in that county. They not only furnished speakers for service clubs, churches, schools, etc., but went into hospitals to explain proposed health bills to both employees and patients. Ballots were taken to bed patients. Weber Auxiliary honored Dr. and Mrs. E. P. Mills at a dinner in the Ben Lomond Hotel, giving to Mrs. Mills, now 83, an honorary membership in the Auxiliary. Dr. Mills, now retired, showed a film, "Self-examination of the Breast."

Utah County Auxiliary gave a very interesting report of their legislative activities. They had numerous meetings, with guests. Topics such as "The Key to Peace" and "What to Expect From Socialized Medical Care" were discussed by competent speakers. The Dental Auxiliary and the Pharmacists' wives helped distribute literature sent out by the state on pending medical bills. During one Farm Bureau meeting, these ladies put their literature in all the farmers' cars.

Salt Lake County Auxiliary under the leadership of its President, Mrs. C. O'Neil Rich, has been extremely active all fall. Nurse recruitment program, a Diabetic campaign, Study Groups, and the greatest project of all—the election campaign with its all-important Socialized Medicine platform. The Auxiliary sent out hundreds of letters of invitation and tickets to the public meeting in the Salt Lake Tabernacle, where President-Elect of the A.M.A., Dr. Kline of San Francisco, was the featured speaker. Following this, about 75,000 pieces of literature were distributed at four different times before the November election. The women wound up the campaign with hundreds of telephone calls to voters the day of the election. This was a non-partisan campaign—simply a fight against Socialized Medicine and Senator Elbert D. Thomas who had fathered the bill.

Mrs. L. H. Merrill of Hiawatha, Utah, Chairman of the State Nurse Recruitment program, stated that nurse recruitment campaigns and programs had been given in most of the schools in the state. The work of a nurse and the advantages of becoming one were shown in films, and interesting speakers pointed out to high school students the place of the professional nurse in the community. This program is very important in this state, as hospital service is being crippled because of the dearth of nurses.

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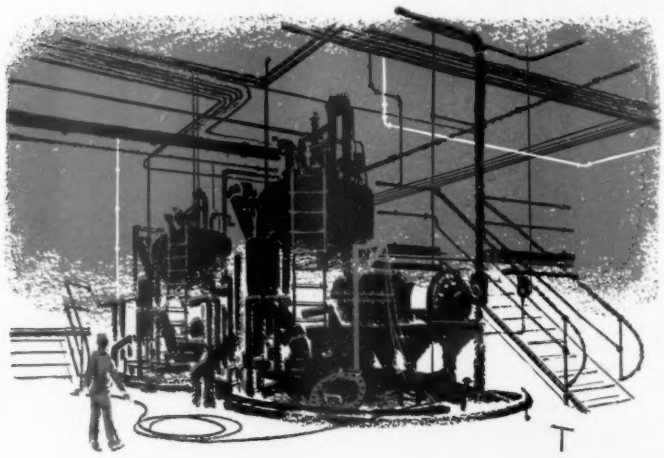

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Aureomycin is now available in a number of convenient forms, for use by mouth and in the eye. New forms of this antibiotic of unsurpassed versatility are constantly being brought out.

Capsules: *Bottles of 25 and 100, 50 mg. each capsule. Bottles of 16 and 100, 250 mg. each capsule.*
Ophthalmic: *Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.*

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Fifty thousand pieces of literature on nursing as a career have been distributed in Utah.

Mrs. Raymond B. Maw, Chairman of Public Relations for the state, urged the members of the Auxiliaries to make new friends outside the Auxiliary, and to forget not the old. These contacts make strong bands with which to endear doctors and their families to the public at large.

Dr. Thomas E. Robinson spoke to the State Auxiliary Board on behalf of the medical profession of the state, thanking the ladies for what they had done. He said that the Healing Arts Committee would be continued, but reorganized.

Mrs. Orin A. Ogilvie, President of the State Auxiliary, made a trip to Salina, Utah, recently, and reports an interesting night meeting held there with the Central Auxiliary on December 6. Our President has been the guest speaker in most of the Auxiliaries in the state, and she plans to cover the entire state before retiring as president.

MRS. CLAUDE L. SHIELDS,
Salt Lake City, Utah.

Tuberculosis Abstracts

Issued Monthly by the National Tuberculosis Association

Vol. XXIV JANUARY, 1951 No. 1

The observant student of pulmonary tuberculosis is impressed by the problems presented by patients in the older age groups. Critical examination of the old misbelief that pulmonary tuberculosis is unusual in persons of advanced years has directed the attention of the profession to the problems arising from the many cases of pulmonary tuberculosis present among older people.

PROBLEMS PRESENTED BY PULMONARY TUBERCULOSIS IN PATIENTS OVER FIFTY

The scope of the problem of tuberculosis in the aged has been brought into increasingly sharper focus by the gradual and wider use of the chest roentgen-ray film as a diagnostic tool. This has taken place since 1930, along with the more widespread use of refined methods of sputum examination for tubercle bacilli. These methods have shown an increased number of cases to have clinically significant pulmonary tuberculosis, whereas by reliance upon the old direct sputum smear method many cases would have been "negative" for tubercle bacilli.

In 1930 Myers stated: "The physician in private practice who insists upon careful examination, including sputum examination, tuberculin test, and x-ray examination of the older people among his clientele, will do much, by arriving at a definite diagnosis, to prevent the spread of tubercle bacilli to the bodies of their associates." At that time other authorities in the field of tuberculosis were also recommending a careful examination including laboratory services for all older people under the care of physicians.

The danger inherent in the contact of the older individual whose sputum is positive for tuberculosis, be it known or unknown clinically, with younger associates, in the intimacy of the home has been stressed by many. In 1940 Wiese wrote: "It is to be hoped that the generally accepted opinion that all elderly persons must cough and that such coughing is without danger to those about them will soon be changed and that all elderly persons with a chronic cough, with or without sputum, will be subjected to as vigorous examination as a younger person."

In the report of one mass x-ray survey of the residents of Erie County, New York, conducted in 1946-

"In addition to the relief of hot flashes and other undesirable symptoms (of the climacteric), a feeling of well-being or tonic effect was frequently noted" after administration of "Premarin."

Harding, F. E.: West. J. Surg. Obst. & Gynec. 52:31 (Jan.) 1944

"All patients (53) described a sense of well-being" following "Premarin" therapy for menopausal symptoms.

Neustaedter, T.: Am. J. Obst. & Gynec. 46:530 (Oct.) 1943.

"It ('Premarin') gives to the patient a feeling of well-being."

Glass, S. J., and Rosenblum, G.: J. Clin. Endocrinol. 3:95 (Feb.) 1943

"General tonic effects were noteworthy and the greatest percentage of patients who expressed clear-cut preferences for any drug designated 'Premarin.'"

Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

Four potencies of "Premarin" permit flexibility of dosage: 2.5 mg., 1.25 mg., 0.625 mg., and 0.3 mg. tablets; also in liquid form, 0.625 mg. in each 4 cc. (1 teaspoonful).

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1947, it was stated: "The proportion of cases found increases directly with the age of those examined. This statement holds whether one considers the proportion of persons with tentative diagnosis of definite tuberculosis or the proportion with suspected tuberculosis. The success of a mass case-finding project hinges on ability to induce large numbers of older persons to be examined, though this fact is not widely recognized. The higher the median age of the group examined, the larger will be the number of cases found."

The Problem of Diagnosis

To rely upon the history and physical examination alone to diagnose pulmonary tuberculosis in the aged is not enough. Associated pathological conditions and altered physiological functions incident to advancing age have hindered the proper interpretation of physical signs. Many aged persons cough, expectorate, lose weight and complain of fatigue and weakness: accurate differential diagnostic study is necessary to determine the reasons why.

There are two primary working tools to employ in the diagnosis of pulmonary tuberculosis. The examination of pulmonary discharges, obtained by expectoration or from the fasting stomach by gastric aspiration and the use of diagnostic chest roentgen-ray film. The film must have such technical qualities that it can be given a proper interpretation by a physician of experience.

The finding of tubercle bacilli in the sputum by either concentration or culture method establishes the diagnosis of clinically significant tuberculosis. A chest roentgen-ray film may upon occasion give evidence of such diagnostic finality that pulmonary tuberculosis can be said to be present from that evidence alone. Very often, however, the roentgen-ray shadows are regarded only as possible evidence of tuberculous infection and further study of sputum specimens is indicated before a definite diagnosis can be made.

One other working tool of diagnostic aid in tuberculosis is the intracutaneous tuberculin test. If a patient gives no response to 0.005 mg. of purified protein derivative (P.P.D.) or to 0.1 ml. of 1-100 dilution of Old Tuberculin (O.T.), clinically significant tuberculosis is not present. A positive reaction to either of the testing agents means only that tuberculous caseous material is present somewhere in the body.

The Problem of Treatment

In the treatment of tuberculosis in the aged, most authorities agree that proper nourishment and rest are the basic treatment, rest being employed for its effect upon the heart and body as a whole. There is less agreement upon the advisability of instituting collapse therapy in older persons with tuberculosis.

The Present 1935-1945 Local Study

In a study of patients with pulmonary tuberculosis admitted to Homer Folks Tuberculosis Hospital (Oneonta, New York), it was found that approximately half (51.3 per cent) were classified as "far advanced." Of the patients who were 50 years of age or older at the time of admission, 64.6 per cent were "far advanced." The patients 50 years of age or older represent 17 per cent of those discharged from the hospital.

In the group of patients aged 50 or over, there is a lower percentage of minimal and moderately advanced cases and the percentage of far advanced cases was higher than that found when the entire group of admissions is studied. Among the far advanced cases the ratio of males to females in the older age groups is four to one in this series.

Conclusions

The problem of the older patient with tuberculosis of the lungs can best be solved by prompt diagnosis and immediate isolation from others. Prolonged strict isolation of older aged males is difficult to achieve.

However, many in the far advanced group will die in the hospital during the first year.

Collapse therapy can and should be employed in the treatment of the more aged patients whenever the indications outweigh the contraindications.

Of 1,329 patients discharged from the Homer Folks Hospital over a nine-year period, 226, or 17 per cent, were 50 years of age or older at the time of admission.

In the group studied, the ratio of males to females 50 years of age or older was 3:1.

Tuberculosis case-finding methods applied to the older age males continue to be indicated.

Problems Presented by Pulmonary Tuberculosis in Patients Over Fifty, Elfred L. Leech, M.D., F.A.C.P., *Annals of Int. Med.*, August, 1950.

COLORADO
State Health Department

State Laboratory

Using New Tests

The Central Laboratory of the State Department of Public Health is now using new methods and materials in its determinations in serology, tuberculosis cultures, and intestinal parasites.

In serology, the laboratory is now using the VDRL test experimentally. This test derives its name from the fact that it was developed by the Venereal Disease Research Laboratory of the U. S. Public Health Service. It is a microflocculation test that uses the new cardio-lipin antigen. Its advantages are that it is more rapid than the Kahn test, it is less sensitive and thus gives fewer false positive reactions, and it requires less blood.

The VDRL test is being used in conjunction with the Kahn test at present. The Central Laboratory expects, however, that it will replace the Kahn test. The Laboratory runs an average of 11,000 bloods a month, mostly premarital and pre-natal.

Holmes-Jensen's modification of Lowenstein's TB medium is being used for sputum cultures for tuberculosis. At the present, all sputum cultures for TB are being run simultaneously on the new medium and on Corper's medium. Advantages of the Holmes-Jensen modification lies in the fact that it will pick up more positives and that it gives better colony characteristics, thus making it easier to differentiate between the various tuberculosis strains.

The time required to run a culture on the new medium is the same as for Corper's—an average of eight weeks. The Laboratory does an average of 300 sputum cultures a month. Of these, approximately 12 per cent are found to be positive for tuberculosis.

In testing for the presence of intestinal parasites, the ether formalin sedimentation technic has replaced the zinc sulfate flotation method. This allows for cleaner preparation, greater concentration of the material and can be used for a wide range of cysts and ova.

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BOOK CORNER

(Continued From Page 44)

New Books Received

The Physician Examines the Bible: By C. Raimer Smith, B.S., M.D., D.N.B. Philosophical Library, New York. Price, $4.25.

Medical Entomology (With Special Reference to the Health and Well-Being of Man and Animals): By William B. Herms, SC.D., Late Professor of Parasitology, Emeritus, University of California; onetime Lecturer in Tropical Medicine, University of California, Medical School San Francisco; late Chairman, Division of Entomology and Parasitology, University of California. Fourth Edition based on the book known as Medical and Veterinary Entomology. The MacMillan Company: New York, 1950. Price, $9.00.

Principles and Practice of Surgery: By Jacob K. Berman, A.B., M.D., F.A.C.S., Indianapolis, Indiana, Associate Professor of Surgery, Indiana University School of Medicine; Associate Professor of Oral Surgery, Indiana University School of Dentistry; Chief Consultant in Surgery, Billing's Veterans Administration Hospital, Fort Benjamin Harrison, Indiana; Director of Surgical Education and Surgical Research, Indianapolis General Hospital. With 429 Illustrations; St. Louis. The C. V. Mosby Company, 1950. Price, $15.00.

Thoracic Surgery: By Richard H. Sweet, M.D., Associate Clinical Professor of Surgery, Harvard University Medical School. Illustrations by Jorge Rodriguez Arroyo, M.D., Assistant in Surgical Therapeutics, University of Mexico Medical School. Philadelphia and London. W. B. Saunders Company, 1950. Price, $10.00.

Pathologic Physiology: Mechanisms of Disease: Edited by William A. Sodeman, M.D., F.A.C.P., the William Henderson Professor of the Prevention of Tropical and Semi-Tropical Diseases, Tulane University of Louisiana School of Medicine; Senior Visiting Physician, Charity Hospital of Louisiana; Consultant in Medicine, U. S. Marine Hospital at New Orleans. Illustrated. W. B. Saunders Com-Philadelphia, MCML, London. Price, $11.50.

An Atlas of Human Anatomy: By Barry J. Anson, Ph.D., Professor of Anatomy, Northwestern University Medical School. W. B. Saunders Company, Philadelphia MCML London. Price, $11.50.

Evaluation of Industrial Disability: Prepared by the Committee for Standardization of Joint Measurements in Industrial Injury Cases of the California Medical Association and Industrial Accident Commission, State of California. New York Oxford University Press, 1950. Price, $4.00.

The National Formulary, Ninth Edition National Formulary IX N.F. IX: Prepared by the Committee on National Formulary under the supervision of the Council, by authority of the American Pharmaceutical Association; official from November 1, 1950. Published by the American Pharmaceutical Association, Washington 7, D. C., 1950. Price, $8.00.

Eyes and Industry, Formerly Industrial Ophthalmology: By Hedwig S. Kuhn, M.D., Industrial Ophthalmologist, Hammond, Indiana. With 151 Text Illustrations, including three color plates; second edition. St. Louis, The C. V. Mosby Company, 1950. Price, $8.50.

Chemistry Visualized and Applied: By Armand Joseph Courchaine, Instructor in Biological Chemistry, Hahnemann Medical College, and Science Instructor, Hahnemann Hospital School of Nursing, Philadelphia; formerly Laboratory Supervisor,

Human Serum Albumin Department, Sharp & Dohme, Inc., Glenolden, and Chemical Analyst, Allied Chemical & Dye Corporation, Barrett Division, Philadelphia. Edited by M. Cordelia Cowan; drawings by Richard Albany. G. P. Putnam's Sons, New York. Price, $5.50.

Santa Claus, M.D.: By W. W. Bauer, M.D. The Bobbs-Merrill Company, Inc., Publishers, Indianapolis-New York. Price, $2.75.

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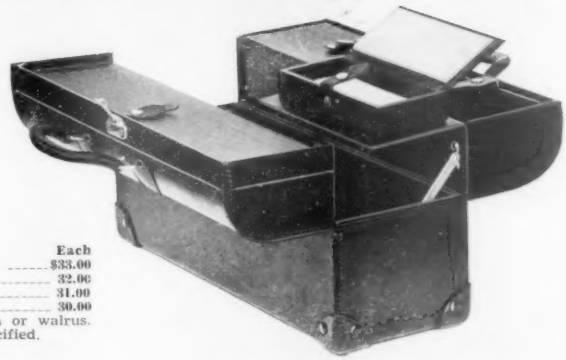

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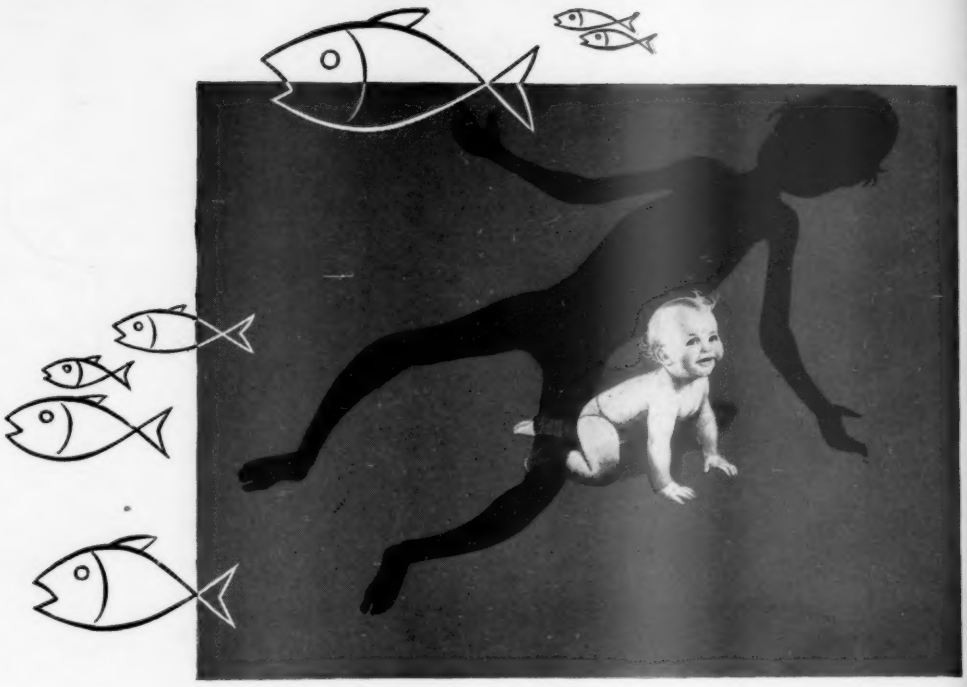

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